TRY, TRY AGAIN
H-1B backers use an immigration reform bill to push for an increase in the visa cap. **PAGE 10**

HR DOESN'T KNOW IT
Thornton A. May finds HR out of touch with the needs of a mobile and highly skilled workforce. **PAGE 20**

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Feds Again Score Low on IT Security

Overall grade stays at D+; execs say complexity works against compliance

BY GRANT GROSS AND ROBERT McMILLAN
WASHINGTON

A congressional committee last week released a report card giving the federal government an overall grade of D+ on computer security for the second year in a row — a rating that prompted harsh words from some lawmakers but also sparked a debate over how useful the grading process is.

At a hearing on Thursday, members of the House Committee on Government Reform lectured IT executives from the Pentagon and the U.S. Department of Homeland Security about the failing cybersecurity scores that the two agencies received as part of the panel's annual evaluation.

"I don't feel comfortable that my homeland is secure," said Rep. Diane Watson (D-Calif.).

In response, DHS CIO Scott Charbo and Robert Lentz, director of information assurance at the U.S. Department of Defense, said the size of the agencies, combined with their widely dispersed workforces and varied missions, result in complex IT environments that are frequently modified as business needs evolve.

"We have a very large and very diverse and dynamic organization deployed worldwide," Lentz said. "Things are changing all the time."

That can make it hard for the DHS and the DOD to comply with the Federal Information Security Management Act, according to Charbo and Lentz. The annual security report card issued by the House reform committee is based on FISMA, which was approved by Congress and

Fed Grades, page 16

INSIDE

An insurer urges credit unions to step it up on security.
PAGE 6

Boeing chopped its list of preferred IT vendors in half, says **Greg Farmer**, director of IT procurement.

DALE DEGABRIELE

RUSH TO JUDGMENT

Some IT buyers have scrapped painstaking product evaluations in favor of a fast-track selection process. But the shortcuts introduce risks that must be managed, Gary Anthes reports. **PAGE 33**

FBI Shifts Into High Gear on $425M Case File System

Taps lead vendor, sets new project management plan

BY PATRICK THIBODEAU
WASHINGTON

The FBI last week said it has hired defense contractor Lockheed Martin Corp. to build a $425 million case management and information-sharing system designed to finally free the bureau from processes that are still largely paper-based.

The latest attempt at modernization, which the FBI first detailed last spring, is expected to take six years to complete, although the bulk of the work should be done by 2009. Called Sentinel, the new technology takes the place of Virtual Case File, a proposed system that was abandoned a year ago after four years of work and a $170 million investment.

Sentinel is a complete makeover and expansion of its predecessor, said FBI CIO Zalmai Azmi at a press conference here. Gone is the proprietary code on which the Virtual Case File system was based. Instead, Lockheed Martin will turn to commercially available software and build Sentinel on top of a service-oriented architecture, he said.

In addition, Azmi has overhauled the FBI's project management procedures in an attempt to address criticisms — reiterated in a government report last week — that the

FBI, page 45

AZMI: Agents need easier access to data.

PATRICK THIBODEAU

NEWSPAPER

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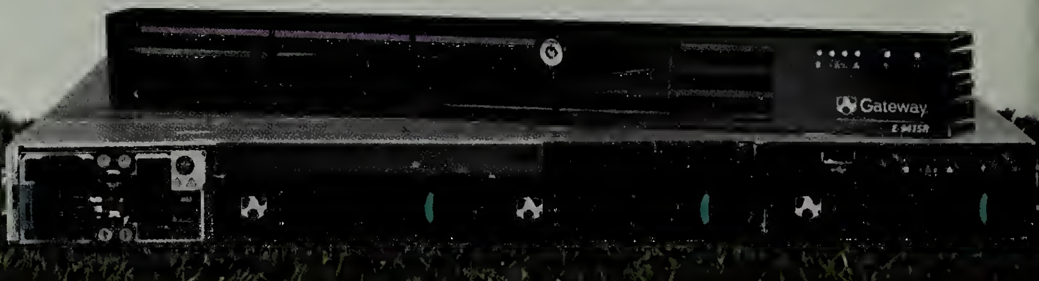

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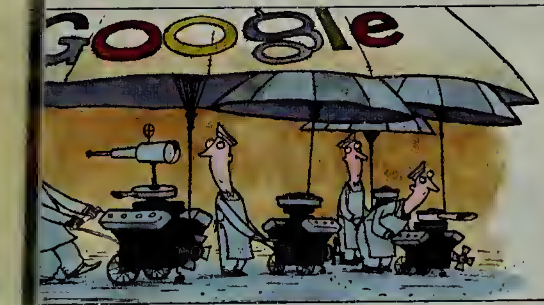

In Google's Shadow

In the Technology section: Major Web search companies like Google and Yahoo are grabbing headlines, but they're far from the cutting edge of enterprise search technology. **Page 23**

It's Not Easy Being Green

In the Management section: Eco-friendly computing is an idea whose benefits will become more apparent over the next few years. Here's what it's all about. **Page 36**

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6 **A programming error** in a McAfee antivirus update causes the software to label legitimate programs as a virus.

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7 **Eclipse users** eye an open-source application life-cycle management tool that is due in the fall.

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30 **Security Manager's Journal: Expecting All-in-One Security Headaches.** The state is imposing all-in-one security appliances on C.J. Kelly's agency, and already she sees more cons than pros.

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20 **Thornton A. May** finds HR increasingly out of touch with the needs of a mobile and highly skilled IT workforce.

21 **David Moschella** sees four main ways that IT organizations seek to differentiate themselves.

32 **Robert L. Mitchell** tackles the myth that IT is a dead-end career.

40 **Barbara Gomolski** was a gung-ho advocate of online bill paying in the early days. It seemed like a great idea, largely enabled by IT. But she has recently developed a more conservative strategy regarding this "improvement."

46 **Frankly Speaking: Frank Hayes** doesn't know whether the FBI has gotten things right this time with its plan for a case management system, but at least we won't

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In Search of Lower Stress

CAREERS: If your work stresses you out, consider these tips from *CareerJournal.com* before changing jobs. Keep in mind that what might seem effortless to one individual may seem excruciating to another.
QuickLink a8300

Solid-State Disk: Forever A Storage Bridesmaid?

STORAGE: One enterprise-class SSD product will fit most Oracle databases, eliminating the need for a giant Unix server, says columnist Steve Duplessie.
QuickLink a8340

Security Scorecard

See grades from the past five years of the House Committee on Government Reform's security report card. **QuickLink a8320**

Compact and Convenient

MOBILE/WIRELESS: For portability in document scanning, Planon's DocuPen RC800, while pricey, is worth a look, writes gadget columnist Michelle Johnson.
QuickLink a8330

Computerworld Hardware Blogs

Every weekday, catch up on the latest commentary and observations from *Computerworld*'s hardware bloggers.
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AT DEADLINE

Lenovo Cuts 1k Jobs, Moves Headquarters

Lenovo Group Ltd. plans to lay off 1,000 employees, or about 5% of its workforce, and move its corporate headquarters from Purchase, N.Y., to Raleigh, N.C., in the face of increasing competition. The cuts will be spread across Lenovo's worldwide offices. Lenovo President William Amelio said the move was made in part "to bring our expense-to-revenue ratio closer to industry benchmarks and simplify our organizational structure."

Microsoft Sues eBay Users for Bootlegs

Microsoft Corp. has filed suit against eight users of eBay Inc.'s auction site for allegedly selling counterfeit copies of the company's software online. The lawsuits, part of Microsoft's continuing effort to crack down on distributors of illegal software, were filed in courts in Arizona, Connecticut, Florida, Hawaii, Massachusetts, Nebraska, New York and Washington.

Adobe Hires Sun's Top Software Exec

John Loiacono will be leaving his post as Sun Microsystems Inc.'s top software executive on Friday to join Adobe Systems Inc. as senior vice president of its Creative Solutions business unit. Loiacono had succeeded Jonathan Schwartz as executive vice president of software at Sun about two years ago. At Adobe, Loiacono will report to Shantanu Narayen, Adobe's president and chief operating officer.

Softbank to Buy Vodafone Unit

Softbank Corp. has agreed to buy Vodafone Group PLC's struggling Japanese mobile phone unit for $15.3 billion. Vodafone said the division had been unlikely to bring it "superior long-term returns." Vodafone CEO Arun Sarin acknowledged that the unit was late in implementing 3G mobile technology. The deal is expected to close by June.

Insurer Urges Credit Unions To Tighten Up on Security

CUNA Mutual pushes new antifraud measures for card-based transactions

BY JAIKUMAR VIJAYAN

AN INSURANCE firm is calling on the 5,500 credit unions it works with to immediately adopt a set of security measures in an effort to curb growing losses from credit and debit card fraud.

The insurer, CUNA Mutual Group, last week released a nine-page document detailing 13 broad security measures and more than 70 specific recommendations for credit unions that issue cards.

For instance, it's recommending that credit unions do round-the-clock monitoring of transactions and develop automated capabilities for immediately acting on fraud alerts.

CUNA Mutual isn't making adoption of the security guidelines a requirement for its credit union customers. But the company will factor in what each credit union does to fight fraud when underwriting insurance polices in the future, said Chris Ryan, director of credit union protection at the Madison, Wis.-based insurer.

"What's driving this is the significant increase in fraud losses that we have seen across the credit union marketplace over the last 18 months," Ryan said. He added that credit unions and CUNA Mutual suffered a combined total of about $100 million in losses from credit and debit card fraud last year -- up 15% from 2004 and 50% from 2003.

Steve Swofford, CEO of Alabama Credit Union in Tuscaloosa, said his organization has implemented or is in the process of implementing most of the security measures prescribed by CUNA Mutual. Even so, ACU this year for the first time expects to file claims to cover its losses from credit and debit card fraud, he said.

"We've never been able to claim insurance, because our losses were relatively low," he said. But this year's fraud losses likely will exceed ACU's deductible for such coverage, according to Swofford.

SECURITY PLAN

CUNA Mutual's recommendations for fighting card fraud include the following:

- **Monitor for fraudulent activity** around the clock, with automated capabilities for responding to alerts.
- **Set your authorization system** to decline transactions in which the name transmitted via a card's magnetic stripe doesn't match the cardholder's name of record.
- **Require use of the Credit Card Verification Value and Card Validation Code** on all PIN-based Visa and MasterCard debit transactions.

As a result of such claims, it's almost inevitable that CUNA Mutual's recommendations will eventually become a requirement for insurance coverage, Swofford said.

Corinne Sherman, vice president of card services at the Pennsylvania Credit Union Association in Harrisburg, said she thinks the new security initiative will go a long way toward reducing fraud losses within the industry.

However, the changes could cost credit unions money in the near term, Sherman added. "I think the immediate impact is going to be a bit overwhelming for credit unions to get everything in place," she said.

Ryan acknowledged that CUNA Mutual's Plastic Card Security Best Practices include a mix of "common sense" measures and more involved steps that could result in increased costs for credit unions.

CUNA Mutual's recommendations appear to be an effort to raise the bar above the levels set by the Payment Card Industry security mandates that were imposed last year by the major credit card associations, said John Pescatore, an analyst at Gartner Inc.

"PCI is all about protecting online transactions and [securely] storing credit card data," Pescatore said. He added that CUNA Mutual's guidelines are focused more directly on mitigating losses from fraudulent uses of cards.

As part of a broader set of antifraud initiatives, CUNA Mutual also is lobbying card associations for stronger data-protection standards and advocating litigation against merchants that allegedly fail to demonstrate due diligence in safeguarding sensitive data. Last April, it filed a lawsuit against BJ's Wholesale Club Inc. seeking to recover losses resulting from a security breach at the retailer.

McAfee Antivirus Update Wreaks Havoc on Systems

Flaw in code leads software to label legit apps as virus

BY JAIKUMAR VIJAYAN

A faulty antivirus software update distributed by McAfee Inc. this month mistakenly identified hundreds of legitimate programs as a Windows virus — a mix-up that led some unsuspecting corporate users to accidentally delete data from affected computers.

The update, released by McAfee on March 10, was designed to protect systems against the W95/CTX virus. But because of a programming error, the update also incorrectly identified, renamed and quarantined hundreds of legitimate executables, including popular ones such as reg.exe, excel.exe, lsetup.exe, shutdown.exe and uninstall.exe.

Santa Clara, Calif.-based McAfee replaced the flawed update with a new patch five hours after the first release. But for customers that had configured their antivirus programs to automatically delete bad files, the error resulted in the loss of hundreds or, in some cases, thousands of files, said Johannes Ullrich, chief research officer at the SANS Institute in Bethesda, Md.

"A lot depended on how you had McAfee configured on your system," Ullrich said. "If you had it configured to basically quarantine bad files, you were OK, because in this case it wasn't too hard to recover the quarantined files. But if you had it delete them, then [recovering the lost files] became a lot harder."

SANS received reports from "dozens" of companies reporting incorrectly quarantined or deleted files, he added.

Joe Telafici, director of operations at McAfee's virus research unit, said the problem was the result of "a subtle logic flaw." The error resulted in at least 290 executable files being incorrectly identified as the targeted virus, he said.

"We are looking at a relatively small percentage of our customer base" that was affected, Telafici said. "But it is a large problem for those who were impacted."

McAfee's antivirus software for home users and small businesses includes a feature that can automatically restore quarantined files. Through its support organization, McAfee has begun offering a similar tool to corporate users, Telafici said. The tool also can be downloaded online.

McAfee is working on another tool that potentially could help companies restore some of the files that were deleted, Telafici said.

Users Taking Nortel's Latest Restatement in Stride

Vendor finds more accounting miscues, says no improper conduct is apparent

BY MATT HAMBLEN

Some major customers of Nortel Networks Corp. last week said they were unfazed by the company's announcement that it will again restate its financial results because of accounting errors.

"Nobody is upset or concerned," said Steve Ford, president of the International Nortel Networks Users Association (INNUA) in Chicago. "We kind of take [the planned restatements] like water off a duck's back."

With about 5,000 members, INNUA is the largest Nortel user group. Ford said the INNUA board was holding a meeting on March 10 when Nortel's management called to inform the board members of the restatement plans, which were announced that day.

"They explained things and get credit for contacting us proactively. It's not that Nortel lost revenue. They just put it in the wrong quarter," said Ford, who is coordinator of electronic services at Northeastern State University in Tahlequah, Okla.

Ford said he remains satisfied with the performance of the Nortel products installed at Northeastern State. He oversees three campus voice networks that run entirely on Nortel gear, and he is slowly introducing voice-over-IP phones made by the vendor.

Nortel said the planned restatement of its results for 2003, 2004 and the first nine months of 2005 primarily stems from a need to correct errors in reporting revenue that should have been deferred to future quarters. The restatements are also expected to include adjustments to the figures for prior years, said Brampton, Ontario-based Nortel, which is delaying the release of its 2005 Form 10-K report until next month.

GRATKE: The restatements shouldn't affect Nortel's development capabilities.

"Although the need to restate certain financial statements is unfortunate, it's the right thing to do," Nortel CEO Mike Zafirovski said in a statement issued March 10. All of the revenue that was accounted for prematurely "is real," he added. "It was [just] recognized in the wrong periods."

In a follow-up statement last Monday, Nortel said the review of customer contracts that triggered the new restatements didn't include an investigation of possible improper conduct by company employees. The networking vendor said it would continue to examine worker conduct, but it added that no wrongdoing was apparent. Nortel ousted 10 corporate and finance executives as part of an earlier series of restatements completed last year.

Fred Gratke, assistant vice president of telecommunications at The Burlington Northern and Santa Fe Railway Co. in Fort Worth, Texas, said via e-mail that the planned restatements shouldn't detract from Nortel's strong points.

"I have to believe this is reflective of poor financial management but does not have any adverse impact [on] Nortel's technical capability or product reliability," Gratke said.

But Zeus Kerravala, an analyst at Yankee Group Research Inc. in Boston, said the restatement plan could hurt Nortel's reputation with some customers. "They need to end this and put it behind them," he said. "It doesn't fill you with confidence that the management team is fixed yet."

One of the strongest reactions to the restatement plan came from Bill Lesieur, an analyst at Technology Business Research Inc. in Hampton, N.H. "Wow, what a mess!" he said in an e-mail. "Just when you think it can't get any worse for poor old Nortel, another bombshell."

Lesieur added that it seems to be "the right time for the board of directors to flip the switch to break up Nortel for divestiture" — a suggestion that both Ford and Gratke described as an overreaction. ▸

Eclipse Adding Tools to Manage App Life Cycle

BY HEATHER HAVENSTEIN

The Eclipse Foundation this week will detail plans to expand its traditional focus on individual open-source development tools by adding a project for managing the entire application life cycle.

During its EclipseCon conference, which starts today in Santa Clara, Calif., officials of the open-source community are expected to provide further information on the Application Lifecycle Management (ALM) Project under development by several of its members.

The Eclipse ALM system promises to tie together development tools from multiple vendors without requiring point-to-point integration.

Eclipse is targeting users like Loren Larsen, chief architect at World Wide Packets Inc. in Spokane Valley, Wash.

Larsen said he would be interested in using Eclipse's ALM project to help his company avoid having to buy an integrated suite from the likes of Microsoft Corp. or IBM's Rational Software unit. Larsen said he would prefer to use best-of-breed tools for the elements in the life cycle.

EclipseCon News

- The Eclipse Foundation will announce Callisto, a new coordinated release program combining 10 large Eclipse projects.
- Eclipse will announce two new Rich Client Platform projects.
- Eclipse's PHP project led by Zend Technologies is now available.
- IBM and Borland Software Corp have joined forces for a new modeling project.
- IBM has stepped up its participation in the Eclipse SOA Tools project led by Iona Corp.
- Salesforce.com has joined Eclipse and has developed a tool kit for Eclipse developers.
- IBM has begun a pilot program to offer support to all Eclipse users.

"[Open-source ALM] is the only way we will get a lot of the different tool vendors to come to the table and provide a single platform everyone can use," he said.

Larsen said his company, which provides Ethernet products to telecommunications carriers, now uses incompatible requirements management, scheduling, defect-tracking, compiler and software configuration management tools.

The Eclipse Foundation plans to roll out proof-of-concept code for ALM at the conference, said Ian Skerrett, the organization's director of marketing.

More than 30 vendors have signed on to support the project, which was launched by Eclipse member Serena Software Inc. last spring. The completed ALM code is expected to be available in October, Skerrett said.

The Right Fit

Tim Farmer, manager of the software architect team at Choice Homes Inc. in Arlington, Texas, plans to look at Eclipse ALM as a potential response to demands that his development group account for the time and resources it spends on specific projects.

Choice Homes has been using a beta version of Microsoft's Visual Studio 2005 Team Foundation Server and some third-party tools to manage projects, but so far, "nothing fits really well," he said.

"Eclipse is something we will probably have to look at before we make a decision on the Microsoft platform," Farmer added.

Meanwhile, Compuware Corp. will be announcing a new Eclipse project called the Eclipse Tools Service Framework, also known as Corona, which aims to support collaboration among tools using the Eclipse ALM. Compuware is developing the code for the Eclipse Foundation project.

The Corona project includes a server-side framework built on Eclipse that supports tools from multiple vendors and collects metrics about events like the number of bugs or exceptions that have been reported.

The system collates the metrics into a central location where IT managers can view the overall development process, said Mike Burba, marketing director for Eclipse project and strategy at Detroit-based Compuware.

Carey Schwaber, an analyst at Forrester Research Inc., said the popularity of Eclipse with developers has bubbled up awareness of the open-source tools to IT managers. "It is one of the things that shows Eclipse is entering a second generation," she said. ▸

Eclipse at a Glance

130	MORE THAN 1,100	61
MEMBERS, up from 91 a year ago	PLUG-IN PRODUCTS created for Eclipse, up from 780 a year ago	PROJECTS UNDER WAY, up from 36 a year ago

BRIEFS

VeriSign to Buy Broadband Firm

VeriSign Inc. has agreed to acquire Kontiki Inc. in Sunnyvale, Calif., for $62 million. VeriSign said the move will allow it to enter the broadband content services business. The Kontiki system will form the "cornerstone" of VeriSign's Broadband Content Services, supporting the legal distribution of rich digital media over IP networks, VeriSign said. The deal is expected to close in the first quarter.

McAfee Promotes Weiss to President

McAfee Inc. has promoted Kevin Weiss, its former executive vice president of worldwide sales, to president. He succeeds Gene Hodges, who departed in January to become president and CEO of Websense Inc. At the same time, McAfee promoted Chief Financial Officer Eric Brown to chief operating officer. Brown replaces Stephen Richards, who retired at the end of 2004.

Unisys Selling Stake In Japanese Unit

Unisys Corp. plans to sell its 28% stake in its Tokyo-based affiliate, Nihon Unisys Ltd. The sale, which is due to be completed this week, is part of the Blue Bell, Pa.-based vendor's plan to divest noncore assets. The deal is expected to fetch more than $350 million for Unisys, which will use the money to fund an ongoing corporate restructuring effort. Unisys wouldn't identify the buyer.

Microsoft Adds BI Optimization Tool

Microsoft Corp. has unveiled a new business intelligence tool for midsize companies looking to use analytics and scorecards to study data through various organizational roles. The Business Intelligence Optimization tool was jointly developed with NexVue Analytics Corp. It was built on SQL Server Analysis Services and integrates with SQL Server 2000 and 2005.

[ON THE MARK]

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ **BY MARK HALL**

WHAT ARE YOU TWO DOING?
PUTTING TOGETHER OUR CONTACT MANAGEMENT SYSTEM
IT'S FUN! WANNA TRY?
CIO
JIG SAW

MATTHEW FAULKNER

Solve the Puzzle Of Contact . . .

. . . management with an online, Wikipedia-like service. In an audience poll at *Computerworld*'s Premier 100 IT Leaders Conference this month, 62% of the 163 respondents said their IT departments are responsible for developing and supporting contact management systems for users in sales and marketing. And in most cases, the poll showed, the monthly cost is more than $50 per end user. What they — and you — might consider is Jigsaw Data Corp.'s online contact management service. "Jigsaw is Dun & Bradstreet Reports meets Wikipedia," quips Jim Fowler, CEO of the San Mateo, Calif.-based company. Its namesake service includes a system that gives users 200 points to start with. For each business contact that you add to your personal list from Jigsaw's database of more than 2.5 million people, the system subtracts five points. For every accurate name that you add to the database, you snag 10 points. But if you put in bad information, Jigsaw takes an equal number of points out of your account. Although you can avoid charges by accruing and selling points, Fowler says that few users do so. Most Jigsaw members simply pay $25 per month, or less with corporate discounts. Fowler says Jigsaw has 52,000 members and adds 10,000 new contacts to its database daily. You can sort them by industry, job function, geography and other parameters. You also can import and export data from and to Outlook, Salesforce.com and other applications. Over the course of this year, Fowler says, Jigsaw will be bulking up its corporate profiles to provide detailed competitive information.

154k+
Number of companies represented in Jigsaw.com

'The Y2k of SOX is over, and now it's . . .

. . . time to manage the process better." That is Mark Portu's advice on complying with the Sarbanes-Oxley Act and other regulations. According to Portu, senior vice president of compliance solutions at Open Text Corp. in Waterloo, Ontario, companies need a broader view of compliance that goes beyond point solutions for specific regulations — one that encompasses all aspects of records management. He claims that Version 3.0 of Open Text's Internal Controls software, due next week, will help users manage documents related to financial, environmental, labor and other regulatory requirements in countries such as the U.S., Canada and European Union member nations. Portu says an average implementation runs about $280,000.

PORTU says to forget point solutions for compliance.

'What, me worry?' That could be . . .

. . . the corporate slogan of the early 21st century. A Gartner Inc. study released this month reveals that 99% of companies "will not be able to respond to an avian influenza outbreak." And Genesys Conferencing Inc. in Reston, Va., polled 586 of its users last month and learned that 60% of them either didn't have a business continuity plan or didn't know if they did. Denise Persson, executive vice president of global markets at Genesys, says the survey helped prompt the company to offer its Emergency Meeting Center service. Users get a toll-free number that can handle 200 or more callers dialing in to receive instructions on what to do in the face of a disaster. There's no charge to sign up. If, heaven forbid, you do need it, you're charged for the minutes you use.

PERSSON: Call for business continuity service.

Read the SLA's fine print before . . .

. . . you sign up for hosted CRM. In the aftermath of a series of outages affecting users of Salesforce.com Inc.'s online CRM service, Natalee Roan, chief marketing officer at Salesforce.com rival Entellium Corp., advises CIOs to take a hard look at any software-as-a-service vendor's service-level agreement (SLA) before signing up. Roan says you need to know three things: What is the vendor's specific time commitment for resolving an outage? Does it offer an automatic cash or service-credit rebate after an outage? And how frequently does it back up your data? She says you need to get the answers in writing. If you can't, Roan warns, you should be suspicious of the hosted service's stability. Needless to say, Seattle-based Entellium claims it answers those questions in its SLA.

ROAN cautions against SLA shortfalls.

Are you a gadget geek but ashamed . . .

. . . of admitting it? Maybe you need a wardrobe upgrade via the TEC clothing line from ScotteVest LLC in Ketchum, Idaho. ScotteVest says its Milan jacket boasts a plethora of hidden pockets to fit your "Blackberry, iPod and Bluetooth [devices] into its Razr-thin patented personal area network." That way, you'll always be connected, but no one has to know it. Since this is Version 4.0 of their fetching fashions, let's hope they've eliminated most of the bugs. ▶

SCOTTEVEST: Hide your inner geek.

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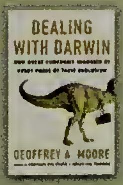

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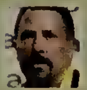

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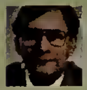

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Fidelity National Aims To Halt Backup Failures

Replaces older EMC system with new $25M SAN

BY SHARON FISHER

EVERY HOUR that Michael Amble's storage network is down costs Fidelity National Financial Inc. almost $4 million.

And that's just the direct cost. The opportunity cost at the provider of real estate services is incalculable, Amble, director of IT at the Jacksonville, Fla.-based company, said last week. Fidelity National Financial insures almost one in three real estate titles nationwide.

"The idea of not having that information accessible is not an option," Amble said.

The company has just completed an internal evaluation of a $25 million storage system it began working on in 2004 to ensure that its data is always available. Fidelity National had decided to replace the previous EMC Corp. storage systems about two years ago, after it had problems with backups failing and forcing restarts, which ate into production time, he said.

The decision to install new systems was made easier because the organization faced a hard limit with the EMC system: Fidelity was at a point where it would have had to spend several million dollars on a new frame to hold more disks. When Amble decided to replace the EMC storage, flexibility and reliability were the most important considerations for a new system, he said.

Cost, however, was not a major factor in the search, Amble said. The new storage-area network cost about $25 million, a little more than half of which is equipment from Hitachi Data Systems Corp. It also includes technology from other vendors, including IBM and Spectra Logic Corp.

Fidelity is already saving money thanks to a reduction in the number of outages in the new system, Amble said.

The network uses three tiers of storage, with the most recently used data on more expensive but faster systems.

Tier 1 is based on Hitachi's TagmaStore Universal Storage Platform USP1100, which offers 150TB of raw storage and runs an Oracle database containing information on current closing properties.

Tier 2 is based on the Hitachi Thunder 9585V modular storage system and holds about 48 million historic title documents, which Fidelity can use the next time those properties are sold.

Tier 3 also runs on the Hitachi Thunder 9585V, which is formatted as a virtual tape drive. Fidelity streams this drive to a regular Spectra Logic tape drive, and the tapes are sent off-site, Amble said. The tapes are part of Fidelity's extensive disaster recovery plan, which includes mirrored Tier 1 systems in Chicago and Little Rock, Ark., connected with an OC3 link.

A combination of Hitachi and Oracle software replicates the data between the two sites. Backup tapes are sent from Chicago to Little Rock to the off-site storage.

"The worst possible data loss would be 30 minutes," Amble said. In a catastrophe where both Chicago and Little Rock went down, which he said is "really unlikely," the company could re-create its data with the tape backup. ▸

Fisher is a special correspondent for Computerworld.

Fidelity's Tiered System

Oracle database with current closing properties, on Hitachi TagmaStore Universal Storage Platform model USP1100

48 million historic title documents, on Hitachi Thunder 9585V

Virtualized tape drive, on Hitachi Thunder 9585V, which streams to a SpectraLogic tape drive

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Senate Bill Seeks to Raise H-1B Visa Cap to 115,000

Would also affect green-card laws

BY PATRICK THIBODEAU

A wide-ranging U.S. Senate immigration reform bill would increase the H-1B visa cap from 65,000 to 115,000 and ease the permanent residency process for some foreign nationals with advanced degrees.

The 300-page Comprehensive Immigration Reform Act of 2006, now being debated by the Senate Judiciary Committee, affects many aspects of immigration policy and security in addition to changes in H-1B and green-card laws.

The bill could reach the full Senate for a vote by the end of the month.

If the measure fails, H-1B proponents will continue their efforts to increase the cap, likely by adding the proposal to another bill, said Sandra Boyd, chairwoman of Compete America, a Washington-based group of businesses, industry groups and universities supporting a visa cap increase.

The group also supports the bill's proposal to speed up the permanent residency, or green card, process for foreigners with advanced degrees. "We will continue to press on these issues," said Boyd.

Applications for H-1B visas for the 2007 federal fiscal year, which begins Oct. 1, can be submitted to the U.S. Bureau of Citizenship and Immigration Services starting April 1.

Last year, the immigration bureau cut off new applications in August after reaching the 65,000-visa limit for the 2006 fiscal year. That marked the earliest date the cap has been reached so far. Vic Goel, an immigration attorney based in Reston, Va., believes visas will disappear at a similar pace this year — if not faster.

"People have been waiting for the filing date to reopen, so there is going to be some pent-up demand," he said.

The current cap of 65,000 doesn't include the 20,000 H-1B visas that were issued to advanced-degree holders. The Senate bill would provide for automatic increases in subsequent years once the proposed 115,000 H-1B cap is reached and would eliminate any visa cap for advanced-degree holders.

Any H-1B cap increase is opposed by IEEE-USA, which instead supports efforts to make it easier for foreign workers to gain permanent residency. One provision in the legislation is to create a student visa that can ease the process of gaining a green card.

Ralph Wyndrum, president of IEEE-USA, said his group opposes the H-1B visas because they can be abused by employers, who often treat visa holders like indentured servants. Such workers also risk losing their employers' support for permanent residency if they push for improvements, he said. Raising the cap to 115,000 would make "a bad situation worse," Wyndrum said. ▸

IEEE-USA Starts Training Institute for U.S. Workers

IEEE-USA PLANS to create an Innovation Institute as part of its effort to offer advanced training to U.S. workers.

The organization hopes that the institute will help U.S. companies remain competitive with others around the world and that more technical jobs will be filled by U.S. workers.

IEEE-USA represents engineers, including those working in IT.

Ralph Wyndrum, president of IEEE-USA, said his organization will hold a workshop for faculty in July. The institute is currently recruiting technology innovators to teach there.

At the same time, IEEE-USA plans to ask companies to nominate students for the institute, he said.

The ideal student, said Wyndrum, would be a young advanced-degree holder who is already considered to be among the most prolific of a company's product developers and patent holders.

The classes should include students who "really have potential and let them learn from one another," he said.

The program is part of IEEE-USA's larger effort to help engineers maintain relevant skills and minimize the risk of losing their jobs to offshore workers, said Wyndrum.

"We are advertising and making it clear that members are responsible for their own careers and that they better start upgrading themselves," said Wyndrum, a former director of technology at Bell Laboratories, which is now part of Lucent Technologies Inc.

IEEE-USA began offering online courses last year to help engineers upgrade their skills after many companies stopped offering training for midcareer employees.

The start date for the program has not yet been announced.

– PATRICK THIBODEAU

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[1] U.S. list price. All prices are in U.S. dollars.

[2] Some restrictions apply. See sun.com for details.

Java solaris

BRIEFS

GM Worker Charged In Data Theft

A former security guard at a General Motors Corp.'s technical center has been charged with stealing documents containing the names and Social Security numbers of about 100 GM employees. The ex-employee, James S. Green of Washington Township, Mich., is charged with eight counts of obtaining, possessing or transferring personal identity information and one count of using a computer to commit a crime.

Adobe Discloses Flash Vulnerability

Adobe Systems Inc. has patched several critical vulnerabilities in its Flash media player that could be used by attackers to take over an affected system. Microsoft Corp., which distributes the Flash software with its Windows operating system, also warned customers about the bugs. The vulnerabilities can be found in Flash Player, Breeze Meeting and Shockwave.

Red Hat Outlines Virtualization Plans

Red Hat Inc. plans to integrate Xen virtualization technologies into the next version of its Linux operating system. The firm said it will provide a preview of the technologies in Fedora Core 5, slated to ship by the end of this month. The technology will be included in Version 5 of Red Hat Enterprise Linux later this year.

Sun Sued After Threats Against Firm

Azul Systems Inc. has sued Sun Microsystems Inc. as a defensive move against what Azul called litigation threats and unfounded accusations from the larger IT vendor. Azul said it is seeking declaratory relief in the lawsuit, filed in U.S. District Court for the Northern District of California. Azul said Sun has threatened to sue it for patent infringement and misappropriation of trade secrets. Azul calls those charges unfounded.

Sun CIO Pushes Internal Grid, ERP Consolidation

Works with 'really lean' IT budget

BY ERIC LAI

You might expect **Bill Vass** *of Sun Microsystems Inc. to enjoy a lavish budget as the CIO of a major Silicon Valley technology vendor. In fact, Vass, who joined Sun in 2000 and was promoted to CIO last year, expects to spend about $300 million on internal IT during the company's current fiscal year. That amounts to only about 2% of Sun's expected annual revenue. Vass spoke with* Computerworld *last week about IT issues inside Sun.*

What's on your internal IT agenda this year? We have two big projects. For the first one, imagine a grid that delivers traditional high-performance computing that people are used to, along with stateful computing a la ERP, along with desktops being imaged out to thin-client computers, all in the same architecture.

We have more than 42,000 desktops. With desktops, most of the time you're not using your CPU cycles. So we're taking those CPUs and putting them back into the grid. We're probably the first to attempt to do this with our desktops.

For things like big table joins in a database, we move that to big [symmetrical multiprocessing] boxes. Anything that requires very high performance, we move to our Opteron [server] environment. If we set up the grid properly, we'll have a data center in the future that will always be 80% to 90% utilized, versus 10% to 20%.

Our other big project is related to our recent acquisitions. We currently are running three ERP systems: Oracle, SAP via our acquisition of StorageTek last year, and Onyx from another acquisition. My goal is to consolidate them into a single Oracle "vanilla" instance.

Did you consider going with SAP instead of Oracle? We did do a bake-off between Oracle and SAP. We chose Oracle because their business processes were very close to ours; they now own Siebel, which we also use, and they have good support for x86 Solaris. SAP has a very clean multitiered architecture and is database-independent, which we liked. But SAP was not quite as ready to go on the grid as Oracle was.

Before joining Sun, you worked in IT at the Department of Defense. How is working at Sun different from working for the military? At the DOD, there were 16 million users. I was one of 70 CIOs across the DOD, which had more than 300,000 IT employees. There's no corporation in the world that is even close. Our IT annual budget was about 9%, or more than $30 billion, of the DOD's total budget. A lot of money is spent on life-critical systems. If a ballistic missile system goes down, people can die. That's a much higher bar than what we think of as mission-critical, like keeping eBay from going down for several hours.

How has Sun's IT organization changed in six years? When I first got here, we had nine business units [in IT], each of which operated independently in one of three geographic regions. We effectively had 27 CIOs. We don't have that today. Also, there were 3,000 IT people. Today, there are 800. We've done a lot of outsourcing and consolidation. We also supported 1,200 applications [then]. I helped cut that down to 500, though with our recent StorageTek acquisition, we are back up to 1,000.

My budget, for an IT company, is really lean. ▸

Sun Retail Grid Set to Open for Business

BY PATRICK THIBODEAU

After a series of delays over the past year, Sun Microsystems Inc. on Wednesday will open the retail version of its compute grid.

The Sun Grid will supply processing and storage capabilities through a Web portal for $1 per hour per CPU to individual and corporate users, who can pay by credit card.

The grid has been available since last August to large companies that contract for significant use of the system. The retail version is open to all potential users, Sun said.

Aisling MacRunnels, Sun's director of utility computing, described the Sun Grid portal as a "full open pilot" whose typical users will likely be individual scientists, engineers or developers "looking to just get their work done."

Such high-performance computing users are the primary target for the grid, she said. To a lesser extent, Sun is also aiming the grid at independent software vendors looking to use it to deliver software as a service, she said.

The Sun Grid runs on Opteron-based systems running the Solaris 10 operating system. Sun expects clients to use the grid to run Java- and C++-based software that can take advantage of a grid environment.

Sun isn't disclosing the number of CPUs available to users of the service, other than to say it's in the thousands.

The largest commercial Sun Grid user so far is Virtual Compute Corp., a Cypress, Texas-based firm that provides high-performance computing services.

CEO Edward Hayes said the company bought more than 1 million hours of compute time last fall and has recently been running a customer's seismic survey data to create a 3-D rendering of what's underground.

Sun intended to launch the public grid early last year, but it faced delays, including U.S. State Department concerns about making such massive compute resources widely available.

Because the compute power of a grid could be used for malicious activities, the U.S. is requiring that its users be checked against restricted-persons lists used to identify people who may pose a threat.

Under the pricing schedule, using 100 CPUs for an hour would cost a user $100.

John Madden, an analyst at Boston-based Summit Strategies Inc., said the retail version of the site could give Sun the "proof points" to convince large business customers that use of the grid is straightforward. ▸

Sun Grid

- **RETAIL VERSION:** Available Wednesday, offering users access to Sun Grid via a Web portal for $1 per CPU per hour. Payments can be made using PayPal or a credit card.
- **COMMERCIAL VERSION:** Available to corporate users since August 2005. A purchase order can be used to reserve resources. Standard payment is same as for retail, but large-user discounts are available.
- **TYPICAL USERS:** For high-performance computing, life sciences, oil and gas, and government applications. Sun is also targeting vendors that need compute resources for software-as-a-service offerings.

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China's New Five-Year Plan Sets Tech Goals

BEIJING

CHINA'S Ministry of Information Industry (MII) is starting to work to achieve the IT goals set out in the country's 11th five-year plan, which was approved last week by the National People's Congress.

Five-year plans, a legacy of the days when China was a purely centralized society, outline the government's economic and social development policy goals. The new plan covers the period from this year through 2010.

The high-tech objectives in the plan include developing semiconductor manufacturing technology for advanced systems, building high-performance computing systems and deploying a nationwide digital TV network. The MII said that this year, it will increase funding for the Chinese semiconductor industry and promote further development of Linux and applications based on the open-source operating system.

The ministry also plans to provide more funding for development and deployment of advanced wireless technologies such as wireless broadband networks.

■ SUMNER LEMON, IDG NEWS SERVICE

GLOBAL FACT

$18.9M

The average annual value of 1,091 IT services contracts signed in the Asia-Pacific region from 1999 through last year. The average contract length was 4.6 years.

SOURCE: GARTNER INC.

Design Firm Charged With Pirating Software

SINGAPORE

THE SINGAPORE Police Force has charged PDM International Pte. Ltd., an interior design company, with using 51 copies of pirated software from Adobe Systems Inc., Autodesk Inc. and Microsoft Corp. "to obtain a commercial advantage."

PDM is the first company in Singapore to be charged with using unlicensed software since the country's Copyright Act was amended at the start of last year to make large-scale copyright infringement by businesses a criminal offense.

The company faces fines of up to 20,000 Singapore dollars ($12,356 U.S.). A receptionist who answered the phone at PDM last week said the company wouldn't comment about the piracy charges.

■ SUMNER LEMON, IDG NEWS SERVICE

Philippine Government Builds Agency Portal

MANILA

THE NATIONAL Department of Science and Technology (DOST) in the Philippines has launched a Web portal that it hopes will eventually integrate the databases of various government agencies as well as those of public and privately run research institutions.

The portal, located at *www.science.ph*, initially provides links to about 65 databases belonging to agencies within the DOST, including the Technology Application and Promotions Institute and the Philippine Council for Advanced Science and Technology Research and Development.

DOST officials said the portal uses Web services and Java technology to link open-source and proprietary databases. Users can run queries against individual databases. Future versions of the portal will add advanced research capabilities and an e-commerce tool that can integrate payments for subscriptions to multiple databases. ▸

■ LAWRENCE D. CASIRAYA, COMPUTERWORLD PHILIPPINES

Compiled by Mike Bucken.

Briefly Noted

Equant NV, an Amsterdam-based subsidiary of France Telecom SA, has signed outsourcing contracts with Universal Music Group and Getinge AB. Equant said its five-year deal with UMG covers the New York-based company's communications infrastructure. The seven-year contract with Sweden-based Getinge covers data management, fixed and mobile voice services, hosting and end-user support. Equant didn't disclose the value of either deal.

Hitachi Ltd. last week named Etsuhiko Shoyama, currently its president and CEO, as chairman, effective April 1. Tokyo-based Hitachi named Kazuo Furukawa, an executive vice president in charge of its systems business, to replace Shoyama as president.

■ STEVEN SCHWANKERT, IDG NEWS SERVICE

Research In Motion Ltd. confirmed last week that it is in talks with Beijing-based China Mobile Communications Corp. about launching its BlackBerry wireless e-mail service in China. No timetable has been set for the launch, said RIM, which already offers the BlackBerry service in Hong Kong.

■ SUMNER LEMON, IDG NEWS SERVICE

Amazon.com Unveils Data Storage Service

Online retailer looks to leverage IT infrastructure to expand business

BY TODD R. WEISS

With its e-business credentials firmly established, online retailer Amazon.com Inc. last week unveiled a new service through which it leverages its massive IT infrastructure by leasing storage capacity to independent and corporate software developers.

The Seattle-based company's Web services division unveiled the Amazon S3 service to sell excess storage capacity on Amazon's IT systems for 15 cents per gigabyte per month for storage, plus 20 cents per gigabyte for data transfer.

The Stardust@home space science project at the University of California, Berkeley, a test site for Amazon S3, is using the service to store some 60 million photographs of interstellar space dust collected by NASA's Stardust space probes.

Bryan Mendez, an astronomer at Berkeley, said project officials decided to use Amazon S3 a few months ago because it would have been too expensive to purchase short-term storage just for the experiment. "It would be more than we need for this one-time shot," Mendez said.

The millions of photographs are nearly ready for a review by volunteers looking for visible "tracks" of particles collected by the probe before the images are passed on to scientists.

Analysts were unsure about whether Amazon.com's service can be successful.

It's a "ploy" aimed at small and midsize businesses (SMB) that won't likely appeal to large organizations, said Chris Foster, a storage analyst at Technology Business Research Inc. in Hampton, N.H. "Even if I'm an SMB, I don't know if I want to start storing stuff outside [my own network], particularly customer data."

Foster also noted that there are plenty of established vendors offering such services. "I'd rather go to someone whose core competency is managing or storing data," Foster said.

Ronald Schmelzer, an analyst at ZapThink LLC in Baltimore, said that Amazon is trying to position itself as a technology platform, rather than as just an e-commerce site. "It's a stretch of the business plan," Schmelzer said.

Amazon created its Web services division in July 2002 to encourage software developers to create and offer custom applications to Amazon.com sellers. The sellers then pay to use the applications, including specialized inventory and tracking software, to customize their online stores.

The unit has signed up more than 150,000 registered developers since its creation.

The Secure S3 service is now available to any developer, from college students to entrepreneurs and enterprise developers, with no start-up or monthly maintenance fees.

Amazon S3 allows developers to write, read and delete objects up to 5GB in size, with each object stored and retrieved via a developer-assigned key, the company said.

The service uses standards-based Rest and SOAP interfaces designed to work with any Internet development tool kit, according to Amazon. ▸

Amazon S3

Storage service features:

- **SCALABLITY:** Amazon S3 can support an unlimited number of Web-scale applications.
- **RELIABILITY:** It can store data durably with 99.99% availability, and there are no single points of failure, says the company.
- **PERFORMANCE:** Amazon S3 can support high-performance applications; performance bottlenecks can be fixed by adding nodes.

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Continued from page 1

Fed Grades

signed into law in 2002.

Karen Evans, administrator of e-government and IT within the White House's Office of Management and Budget, agreed with Charbo and Lentz that large agencies can have a tougher time complying with FISMA than smaller ones.

OMB'S EVANS: Large agencies can have more difficulty complying with FISMA than smaller ones.

Rep. William Lacy Clay (D-Mo.), another member of the reform committee, was unmoved. "It sounds as if you are defending the incompetency of DHS," he told Evans.

But Rep. Tom Davis (R-Va.), the committee's chairman, showed some sympathy for agencies such as the DHS and DOD. For example, he noted that the DHS brought together more than 20 federal agencies when it was formed in 2003. "This is a work in progress," he said of efforts by the DHS to bring all of its systems into compliance with FISMA's requirements. "This takes years."

Some analysts questioned the effectiveness of the entire FISMA process, saying that the assessments don't provide a true picture of the IT security capabilities at federal agencies and don't do much to promote improvements in the government's security mechanisms.

FISMA requires agencies to prepare IT inventories, test their systems for security vulnerabilities and develop remediation plans in case systems are affected by major attacks or outages. Reports prepared by agency CIOs and inspector generals are designed to gauge whether the departments meet FISMA's security standards.

But rather than focusing on FISMA, the government should adopt security scorecards that measure the real-world "readiness" of its computer systems, much like the military reports on the battle-readiness of its weapons systems, said Alan Paller, director of research at the SANS Institute in Bethesda, Md.

The security certification and accreditation reports required under FISMA "are 90% documentation," Paller said. "The consultants that write these reports have never secured a computer system. They wouldn't know a secure system if they met it on the street."

Input, a Reston, Va.-based market research firm that focuses on government IT issues, said in a report released last week that FISMA "can be assessed as largely ineffective" in improving the IT security posture of federal agencies.

"FISMA has become a largely paperwork drill among the departments and agencies, consuming an inordinate amount of resources for reporting progress while putting in place very little in the way of actual security improvements," Input analyst Bruce Brody said in a statement.

Brody added that FISMA's focus on individual systems and sites "does not recognize the importance of backbone infrastructure security improvements."

At Opposite Ends

The high and low scorers on the U.S. government's security report card for 2005:

A+
- Agency for International Development
- Department of Labor
- Environmental Protection Agency
- Office of Personnel Management
- Social Security Administration

F
- Department of Agriculture
- Department of Defense
- Department of Energy
- Department of Health and Human Services
- Department of Homeland Security
- Department of the Interior
- Department of State
- Department of Veterans Affairs

SOURCE: HOUSE COMMITTEE ON GOVERNMENT REFORM

On the latest report card, eight of the 24 agencies that were evaluated received F grades for 2005. In addition to the DHS and the DOD, agencies getting Fs included the departments of State, Energy, the Interior, Agriculture, Veterans Affairs, and Health and Human Services. The DOD's grade declined from a D in 2004, while the Department of the Interior dropped down from a C+ and the State Department fell from a D+.

Other agencies that saw their 2005 grades drop from those given for the previous year included the Department of Transportation, which fell from an A- to a C-; the Department of Justice, which went from a B- to a D; and the Nuclear Regulatory Commission, which slipped from a B+ to a D-.

Seven agencies received grades of A- or better, with the Department of Labor, the Social Security Administration and the Environmental Protection Agency among the five that were given A+ grades.

Big gains were recorded by the Office of Personnel Management, which saw its grade improve from a C- to an A+, and by the National Science Foundation and the General Services Administration, which went from C+ grades to an A and an A-, respectively. In addition, NASA's grade rose from a D- for 2004 to a B- for last year.

Davis said that improving cybersecurity at the agencies still struggling to get better grades is "vital" to national security and the health of the U.S. economy. "None of us would accept D+ grades on our children's report cards," he noted. "We can't accept these, either."

REP. DAVIS says that a D+ average on computer security is unacceptable.

Charbo said the IT security program at the DHS "has come a long way in just three short years." But he agreed with Davis that the DHS needs to do better. The sprawling agency's size and complexity "doesn't change the fact that . . . we're nowhere near where we wanted to be," Charbo said. ◗

Gross and McMillan write for the IDG News Service.

Agencies Seeing Progress, Despite Failing Grades

WASHINGTON

EVEN THOUGH the DHS and the DOD both received Fs on computer security for 2005 from the House Committee on Government Reform, the IT executives who testified at last week's hearing said the two agencies have made major security improvements in recent months.

Robert Lentz, director of information assurance at the DOD, said the Pentagon has begun a process to track IT security personnel and security certifications. It also has conducted cybersecurity training for 2 million of the 2.6 million military, civilian and contract workers within the DOD who have access to its networks.

The DHS, which began operating as a combined agency in early 2003, completed an inventory of its systems and applications last August, CIO Scott Charbo said. Earlier, in April, the agency had rolled out a systems certification and accreditation tool, according to Charbo. About 26% of its IT equipment was accredited as of late 2005, and that number is now up to 60%, he said.

> **We also recognize that FISMA compliance is just one mechanism for security analysis and reporting.**
>
> **THOMAS HUGHES,** CIO, U.S. SOCIAL SECURITY ADMINISTRATION

Thomas Hughes, CIO at the Social Security Administration, also testified at last week's hearing. Social Security was one of five agencies that received an A+ grade for 2005 from the reform committee. As part of complying with the Federal Information Security Management Act, agencies "need to constantly challenge the traditional status quo," Hughes said.

Social Security takes its FISMA compliance responsibilities "very seriously," he said. But, Hughes added, "we also recognize that FISMA compliance is just one mechanism for security analysis and reporting." Additional evaluations are also critical to the agency's efforts to maintain effective IT security, he said.

Thomas Wiesner, deputy CIO at the U.S. Department of Labor, noted that his agency's security grade has improved from an F for 2001 to a B- for 2004 and now an A+ for last year. "As we are faced with the evolution of FISMA compliance," Wiesner said, "we will strive to maintain a balance of FISMA reporting requirements and the implementation of sound security practices."

– GRANT GROSS,
IDG NEWS SERVICE

Correction

In last week's issue, the integrator in a project to add IP-based communications capabilities to an emergency vehicle in Anne Arundel County, Md., ("Disasters Proving Mettle of IP Communications") was incorrectly identified. Arinc Inc. in Annapolis, Md., was the integrator for the project.

CA Integrates Desktop, Server Management Tools

BY MATT HAMBLEN

CA Inc. today plans to unveil the CA Desktop and Server Management family, which integrates three existing tools that offer software delivery, remote-control and asset management functions.

At the same time, CA is bringing out two new tools that can be included in the integrated offering: the CA Desktop Management Suite for Windows, which manages PCs throughout their life cycle, and Unicenter Patch Management, which manages the desktop and server software-patch function.

Each of the tools in the integrated system, including the new offerings — Unicenter Asset Management, Unicenter Software Delivery and Unicenter Remote Control — continue to be available separately. The full suite is now available.

Time-saver

Jason Bullock, systems administrator at Colorado Springs School District 11, a beta tester of the integrated software since October, uses the suite's single management console to monitor software delivery, asset management and remote control of machines.

Bullock noted that one unexpected benefit of the updated system is its support for older Windows 95 machines, of which the district still has 4,000.

The automated update feature also cut the school district's costs by reducing the travel time of 15 IT workers who shared the job of delivering updates to the schools, Bullock said.

"It makes my job a lot easier and has saved us all hours of work," he said.

In all, there are about 10,000 PCs and servers in the district, which has 4,000 school administrators and 33,000 students in 60 locations, Bullock said.

Integrating the software agent functions into a single agent is a "huge benefit," said Harry Butler, support center manager at EFW Inc., an electronics supplier in Fort Worth, Texas. Having multiple agents running on hundreds of machines was a "pain in the butt," Butler said.

EFW has been testing CA's Desktop and Server Management tools since November on about 1,400 laptops, servers and desktops.

Some EFW IT workers have grown concerned that the CA software may jeopardize their jobs, but Bullock said they have been reassured that they will continue to be responsible for administering the software, among other job functions.

CA's integration of management functions is what makes the new release important, said Andi Mann, an analyst at Enterprise Management Associates in Boulder, Colo. ▸

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Delayed Visual Studio Tool Ready To Ship, Says Microsoft Executive

Collaboration tool set promises to ease the tension between IT and business

BY HEATHER HAVENSTEIN

Microsoft Corp.'s Team Foundation Server (TFS), a key component of Visual Studio 2005 Team System (VSTS) was scheduled to begin shipping last week, after a delay of more than four months. In a recent interview with Computerworld, **Rick LaPlante**, *Microsoft's general manager of VSTS, discussed the new collaboration product, which is a server-based system that supports integrated version control, reporting, work item tracking, process guidance and automated build capabilities.*

How is the new tool attractive to IT managers? I spent the last five years with more than 200 customers, CIOs and senior application development and IT management staffers trying to understand what their pain points are. I heard over and over again . . . this view of [IT] not being responsive to the business because we look at big projects that take long periods of time.

[The goal of TFS is] to put all the value of data collection behind the scenes. That notion of having a data warehouse and then having a set of "collectors" that . . . squirrel away data was a huge piece of this.

I think about Team Foundation Server as being the data warehouse and the role-based [components of VSTS] as being those collectors.

Does Microsoft still expect that TFS will support hundreds or even thousands of users? It is hard to talk about scale numbers without talking about hardware. We're seeing on a big box — like an eight-way box — peak loads of over 3,600 [users] on a single server. I think that is quite conservative.

We took the load profile of Microsoft's engineering teams and recorded the way we used the server. If those [users] don't use it as hard-core as our developers do, then those numbers will go up. Internally, we are up to about 700 people on a single server.

How does TFS work with Microsoft Project now, and what are the plans to strengthen the integration in the future? Today, the real chasm is developers having to do things twice. They go implement the functionality, and they check it in and mark it off. Then they have to go to the Project system and say, "I am done." We allow you to retain the relationship between an element in Project and anything in our work-tracking system. Any change in the [TFS] work-tracking system is immediately reflected in Project. We don't work today with Project server out of the box, although we have some solution kits you can download. Our commitment is [to develop] a much deeper level of integration.

What does the growth of Eclipse mean to the integrated development environment market and to Visual Studio? I think people are using Eclipse because it is a very good IDE, and it is decreasing their costs for developing software. Their user experience and component model are very good. I also think it is a complete knockoff of Visual Studio. People do plug-ins to VS because it is a built-in market. ▸

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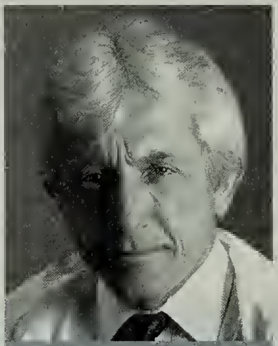
DON TENNANT

Standard Procedure

WHAT would the IT industry be like without the entrenched institution of political lobbying? How much more worthy of our trust would it be?

I find I've been wondering about that a lot lately, especially since I have very little patience for the practice of lobbying in the first place.



DON TENNANT is editor in chief of *Computerworld.* Contact him at **don_tennant@computerworld.com.**

There just seems to be something inherently unhealthy about any system that rewards deep pockets with influence and access.

I get especially antsy when I see those deep pockets being used to influence decisions on adopting technology standards. If there's any decision that should be made totally independent of self-serving vendor lobbyists, it's the adoption by a government or an international organization of a technology standard. Such decisions must be made on the basis of nothing other than what is in the best interests of the people being served by that body.

As I continue to monitor the controversy over Massachusetts' plan to adopt the OASIS OpenDocument format standard for office productivity applications, I'm becoming increasingly concerned that Microsoft will ultimately succeed in beating the state into submission. It's no secret that the Microsoft lobbying machine has pulled out all the stops to compel the state to abandon its initiative to adopt OpenDocument, a standard Microsoft clearly sees as a serious competitive threat. And given that Microsoft has virtually unlimited funds to throw at the challenge, it's difficult to imagine that those within the state's IT apparatus who continue to push the standard will prevail.

The Massachusetts case is something of a red flag. It makes me wonder how widespread and institutionalized the effort is on the part of technology vendors to influence standards-related decisions. In fact, I can't help but wonder what they're doing behind the scenes to sway the standards bodies themselves.

That's why I was intrigued by the news last week that the International Standards Organization had rebuffed China's submission of the WLAN Authentication and Privacy Infrastructure (WAPI) security protocol for consideration as an international standard for wireless LANs. The ISO voted overwhelmingly to reject WAPI in favor of the IEEE's 802.11i submission.

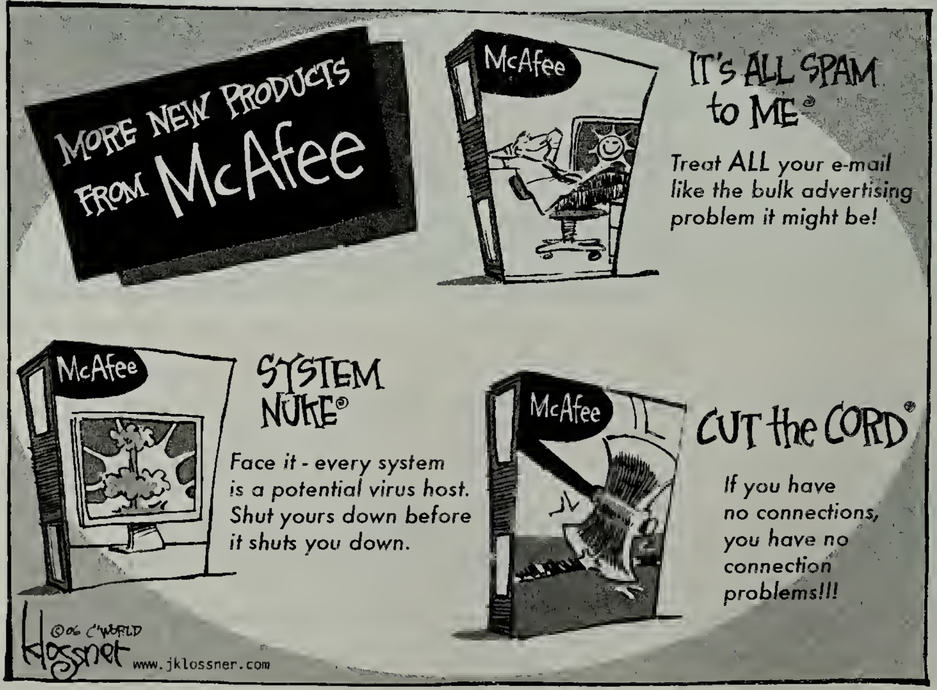
There has been no stronger voice in favor of 802.11i, and in opposition to WAPI, than Intel — another vendor with almost unfathomably deep pockets. The last thing Intel wants is any market segmentation that would create competition for its Centrino mobile technology, which incorporates 802.11i. The prospect of China producing WAPI chip sets under the aegis of an ISO certification no doubt sent some pretty uncomfortable chills through the Intel hierarchy.

So, did Intel exert some sort of influence or pressure on the ISO? Not surprisingly, the Chinese certainly think so. Cao Jun, general manager of IWNComm, the Chinese company that developed the WAPI technology, earlier this month alleged that Intel had engaged in backroom politicking with the ISO.

Moreover, a Chinese industry group that backs WAPI, the Broadband Wireless IP Standard Working Group, maintains that the IEEE had spread misinformation about WAPI, and it wants an investigation into the IEEE's activities during the voting process. The group accused the IEEE of acting "selfishly and irresponsibly" to protect a monopoly commercial interest — an apparent reference to Intel.

Obviously, all of this could well be nothing more than sour grapes on the part of the Chinese, who have invested heavily in WAPI. But their concerns merit serious consideration. Given the fact that fairly zealous lobbying is standard procedure in the U.S. business community, it's no wonder the Chinese are suspicious. ▸

Don Tennant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THORNTON A. MAY

HR Is Out of Sync With IT Work

THE WORLD of IT work has changed significantly in the past three years. Have the practices of human resource departments kept up? Do the humans in the IT department pay anything more than lip service to the policies and practices of the HR department? Is HR a roadblock on IT's journey to create value for the enterprise?

These were the topics that filled a recent daylong discussion at UCLA's Managing the Information Resource program. Along with the results of ongoing surveys conducted at the IT Leadership Academy and polls of the hundreds of alpha practitioners who attended *Computerworld*'s Premier 100 IT Leaders Conference two weeks ago, that discussion reveals a growing concern that HR, while critical to the effective functioning of IT, is in many ways out of touch with the current realities of how IT work actually gets done.

THORNTON A. MAY is a longtime industry observer, management consultant and commentator. Contact him at **thorntonamay@aol.com.**

Here are some examples:

- IT practitioners say job descriptions cease being relevant after someone has been doing the work for six months or so. The job the employee actually does after that initial period typically morphs into something very different, but job descriptions are rarely updated. The problem is that many widely deployed HR practices were created for Industrial Age work environments. It's time for an HR upgrade to the Age of Big Information (see "Entering the Age of Big Information," Feb. 20).
- The work of contingent or temporary employees, who may constitute as much as 80% of the head count in many IT shops, is typically counted and measured very differently than that of full-time workers, giving a distorted view. Thus, although HR may boast that it has reduced or held the line on IT head count, more people

may actually be working on IT projects than ever before.

■ A stunning 89% of the IT executives queried at the Premier 100 conference said that their organizations aren't spending enough on grooming the next generation of IT leaders; 51% said their organizations are spending "way too little" in this area.

And "HR doesn't get IT" is not just a North American plaint. Recent research conducted by consulting firm McKinsey & Co. shows that boards of directors and senior executives in Europe have similar concerns.

One thing is certain: Organizations are going to be spending increasing amounts of time on IT management issues. One of the attributes of high-performance companies is that there is a great — not just good — relationship between the HR and IT organizations.

One of the leading experts on HR management, professor David Lewin of the Anderson School at UCLA, says IT leaders should be talking to their HR colleagues about an HR management portfolio with these eight facets:

1. Job and work design
2. Selection and staffing
3. Performance appraisal
4. Compensation and rewards
5. Training and development
6. Employee relations
7. Safety, health and wellness
8. Workforce diversity

Work in the Age of Big Information is not a matter of just showing up and doing something that takes more brawn than brains. Today's workplace must balance the value outcomes that the employer is seeking against the rights, powers and aspirations of increasingly mobile workers applying information-based skills. HR in many organizations seems both disconnected from the goals of the corporation and insensitive, almost to the point of malfeasance, to the emerging needs of a highly skilled IT workforce. ▸

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DAVID MOSCHELLA

Where's Your Edge?

FEW TOPICS get more attention in our industry than the relationship between IT and competitive advantage. Does IT help drive revenues, gain market share or improve margins? That's what ultimately matters. My firm's research shows that a little more than a quarter of business executives believe that their use of IT gives them these sorts of direct advantages in their markets.

But while competitive advantage should be discussed primarily in business terms, IT organizations can also benefit by examining their own operations to identify where competitive differentiation is being sought and delivered. In working with our clients, we have found the 2-by-2 diagram shown here to be of significant help in determining the relative importance of technology and industry-specific capabilities.

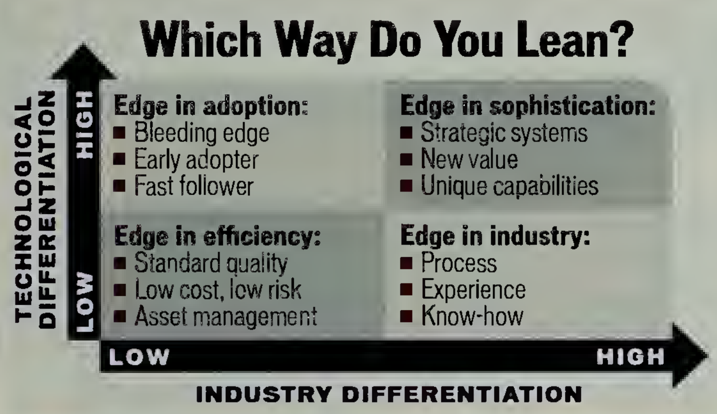
DAVID MOSCHELLA is global research director at the Leading Edge Forum, a Computer Sciences Corp. company. Contact him at **dmoschella@earthlink.net**.

As the figure suggests, there are four main ways that IT organizations can seek to differentiate themselves:

Edge in efficiency. Corporate IT can seek to deliver the necessary table stakes for the industry in which the company competes, at lower costs than competitors. If this is the overriding aim, the other three quadrants don't really matter.

Edge in adoption. Many IT organizations are naturally inclined to emphasize this quadrant, since it gives them license to work with the latest tools of their profession. But what is needed is a truly objective analysis of which new technologies should be adopted and at what rate.

Which Way Do You Lean?



SOURCE: LEADING EDGE FORUM

Edge in industry. One IT organization can be more effective than another by simply being better in tune with the needs of the company and its industry sector, but this tends to run against the grain of many IT staffers, who see themselves less as industry specialists and more as masters of largely general-purpose skills and technologies.

Edge in sophistication. Every industry has its leading edge of advanced usage, and it typically lies at the intersection of IT and emerging business opportunities. Think advanced simulations, the trading of derivatives or affinity marketing. Does your company compete in these realms, and if it does, what role, if any, does IT play?

While many IT organizations will have strategies for all four quadrants, we have found that the relative priorities are rarely agreed upon explicitly with the business and that corporate IT often leans too much toward the left side of the diagram. There is a real opportunity for IT organizations to raise their profile by articulating how well aligned they are with their company's overall competitive positioning. It's not a difficult exercise, but when was the last time you really did it? ▸

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www.computerworld.com/columns

READERS' LETTERS

Self-improvement

I REALLY ENJOYED Paul Ingevaldson's article in *Computerworld* about the "Seven People of Highly Ineffective Habits" [Jan. 23]. It was a very realistic view on defining IT roles seen today. I was able to place myself in a couple of the categories (as well as many of my co-workers). I had better start weaning myself off those ineffective habits.

Kayer Kapadia
Systems administrator, Republic Title, Dallas, kk@republictitle.com

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Telegrams Were Attention-getters

DON TENNANT, in his Feb. 13 editorial, "Laughing Matter," says he "can't begin to fathom" who sent 20,000 telegrams via Western Union in 2005. Well, I have recently sent a telegram, though I can't imagine that the 20,000 people last year found themselves in the same situation I did. It was 2002, and I was trying to contact some local friends to invite them to a going-away party for a friend moving to Florida. I left them a few voice-mail messages that were never returned, so I ended the last one with, "What, do I have to send you guys a telegram?" Then I found out that you still could. So I did.

Alan Groupe
Principal software developer, Oracle Corp., Nashua, N.H.

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Who's Next?

IT WAS refreshing to finally see some reality introduced into the entire security patch issue in the Jan. 23 article "Microsoft Earns Patching Praise From IT Execs."

Microsoft-bashing has been chic among the technically savvy for years, and it can often be justified. Microsoft will continue to be a major target of hackers and detractors as a function of its size and influence. There just is not much reward in attacking something with minimal market share, desktop coverage or importance.

However, as Microsoft continues to shore up security issues, those bent on causing grief are going to seek easier targets. What comes next? Certainly, open-source products such as Linux are starting to appear on the bad guys' radar. It will be interesting to see how issue identity, resolution and patch management evolve in that fluid environment.

Mitchell Draper
Assistant vice president and director of IT, Capital City Insurance, Columbia, S.C.

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WOULDN'T IT be nice if the headline instead said, "Microsoft Earns Praise From IT Execs for a Solid System"?

Dave Olson
Manager, data processing and phone systems, Sioux Falls, S.D.

Not Our Job, Man

IN HIS column "Creative Bungling" [Feb. 6], Frank Hayes says, "Even though data security is IT's job, this isn't a problem that IT can solve." Actually, data security is *not* IT's job, and that is why IT can't solve this problem.

Mikhail Utin
Security analyst, MRC Inc., Middletown, R.I., mutin@rubos.com

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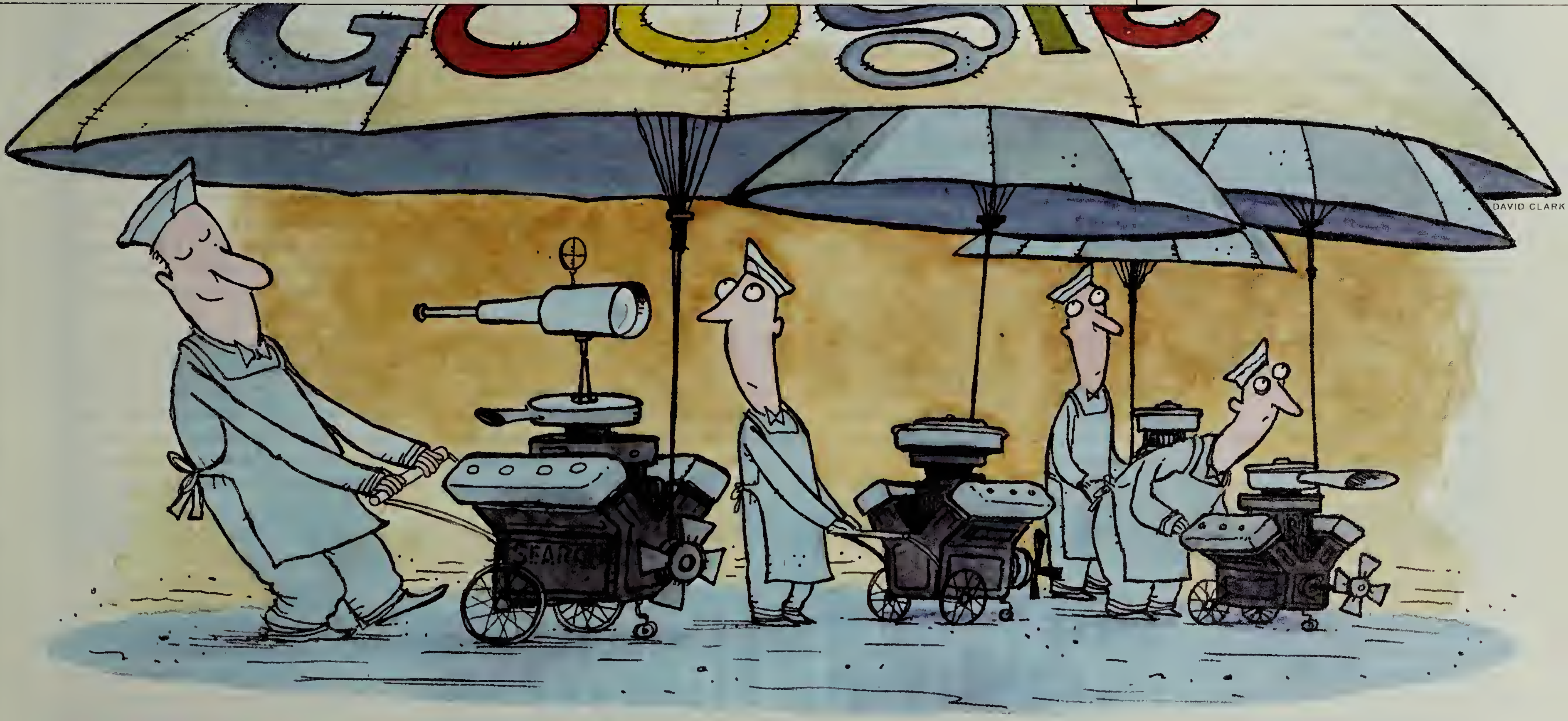
Net Gains
Internet pioneers Robert E. Kahn (right) and Vinton Cerf, along with networking expert Guru Parulkar, comment on the Internet's past and present and speculate that we might have an interplanetary Net within 10 years. **PAGE 26**

FUTURE WATCH
Automagic Code Generators
Techniques for generating software automatically have existed for decades. But now researchers are taking it to a higher level. **PAGE 28**

SECURITY MANAGER'S JOURNAL
Expecting All-in-One Security Headaches
The state is imposing all-in-one security appliances on C.J. Kelly's agency, and already she sees more cons than pros. **PAGE 30**



DAVID CLARK

IN GOOGLE'S SHADOW

MOVES BY THE WEB SEARCH GIANT HAVE FOCUSED NEW ATTENTION ON ENTERPRISE SEARCH AND GOTTEN THE ATTENTION OF THE LEADING PLAYERS. BY DREW ROBB

GOOGLE INC.'S RECENT FORAY into the enterprise search market may have raised the profile of the technology, but the tools are nothing new to Jeff Watts and National Instruments Corp.'s 3,500 employees and 25,000 customers.

"We use our enterprise search engine everywhere throughout the company," says Watts, search and syndication manager at the Austin-based company. "We've had enterprise search since before the dot-com era and outgrown many different tools along the way."

The company uses an engine from Fast Search & Transfer ASA (FAST) in Oslo to index a half-million internal documents and several hundred thousand more on its customer-facing sites. It's also in the process of indexing 100 million records in its data warehouse as part of a business intelligence project. On top of that index lie about 30 interfaces designed for specific applications.

"If you are using a Web search engine like Google or Yahoo or MSN, you have one interface into a variety of different types of documents," Watts says. "But with enterprise search, you can tailor it to your business needs."

One such interface is designed for tech support, an area where National Instruments spares no expense — it hires engineers for front-line support. There is a special portal interface providing quick access to the information those engineers need to quickly answer customer questions. The search system also serves its customers in 35 languages.

"When we make these technologies — like a fully searchable product catalog in a new language — sales trend up dramatically in those regions," says Watts. "FAST enables us to put that kind of e-commerce information in front of the users."

Google and, to some extent, its rival Yahoo Inc. are, of course, the search engines dominating the news. Business sections track Google's stock fluctuations, and the February congressional hearings on its China operations were front-page material.

"Google has created a lot of visibility around search on the consumer side," says Matthew Brown, an analyst at Forrester Research Inc. "Companies are very excited about that and see that search can be a mission-critical application for the enterprise."

But what works well in Internet search doesn't always meet enterprise needs. So although Google does offer enterprise search appliances and just released two new low-cost versions in January, it's not necessarily where the news lies in terms of cutting-edge technology.

"In the basic information-retrieval area, Google is being very disruptive," says Brown. "It has come in at a very compelling price point, but they are not a product leader and are not differentiating themselves in terms of features and functionality."

Brown breaks down search into three main categories. There is the traditional function of simply locating and retrieving documents. Next comes the ability to do a deeper analysis of the data to locate patterns and trends, and to meet specific needs for business intelligence, regulatory compliance, discovery in legal cases or other areas. Finally, there is real-time monitoring and analysis of data, particularly for security and financial applications.

Google is strong in retrieval, but not in the other areas. Instead, companies such as Autonomy Inc., Endeca Technologies Inc. and FAST are leading the way by providing deeper analysis and the ability to integrate with other enterprise applications to improve employee productivity, meet compliance needs or drive business initiatives.

"These search engines have more analytic abilities to discover relationships among documents by picking up common terms," says Rita E. Knox, an analyst at Gartner Inc. "Many enterprises also need augmented capabilities beyond standard search, such as identifying what is a company name, a person's name or a geographical location."

Targeted Search

Selecting the right search engine, therefore, relies on identifying business needs and finding the best match.

"Companies tend not to use a single product but a variety of products, based on what they are trying to do," says Knox.

For instance, National Instruments used four search tools before standardizing on FAST. Other organizations also implement multiple applications targeted to particular business needs.

Sutter Health, a nonprofit organization in Sacramento that operates 26 Northern California hospitals, is using Autonomy's software for competitive research. It analyzes newspapers, professional journals, health care industry Web sites and information on the group's internal bulletin boards.

Jim Harrison, Sutter's vice president for business intelligence, says Autonomy is automating what had been a resource-intensive and manual process.

"It is significantly improving our ability to respond as a group to questions people are asking us," he says. "It gives us more time to sit down and analyze the data because we aren't sitting around figuring out where we need to file an article or where it was located after we filed it."

> **"**
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> **IF YOU ARE USING A WEB SEARCH ENGINE LIKE GOOGLE OR YAHOO OR MSN, YOU HAVE ONE INTERFACE INTO A VARIETY OF DIFFERENT TYPES OF DOCUMENTS. BUT WITH ENTERPRISE SEARCH, YOU CAN TAILOR IT TO YOUR BUSINESS NEEDS.**
>
> **JEFF WATTS**, SEARCH AND SYNDICATION MANAGER, NATIONAL INSTRUMENTS CORP.

World Book Inc. uses search engines to provide content to customers. The Chicago-based encyclopedia publisher uses Endeca's search engine to improve customer service. Since the company is competing with free information services on the Web, it must provide a significantly better customer experience, says Chief Technology Officer Tim Hardy.

"Attracting and retaining subscribers requires that we offer an experience that helps users quickly and easily find desirable information while showcasing the breadth of quality content available," says Hardy. "High-failure search rates, slow performance and an inability to showcase the different types of available content with a homegrown solution were hurting our ability to scale the business and attract new subscribers."

It was also killing IT productivity. The staff spent 80% of its time on search maintenance and 20% on improvements.

World Book uses Endeca on a cluster of Sun Solaris servers to access content in 10 databases, including encyclopedia articles, images, maps and dictionaries, and then present that content to clients. It performs the indexing off-line and then pushes it to the production environment at least once a week. Hardy says that using Endeca has increased the search speed by a factor of eight to 10 while providing richer results.

"Content spotlighting showcases relevant results for all types of content in a single view," he says. "For example, a search for 'Iraq' returns encyclopedia articles on Iraq, plus maps of the country and region, recent photos, special reports on the war in Iraq and its aftermath, and audio files of President Bush sending troops to Iraq."

The new search engine has contributed to a 20% increase in sales, as well as a 30% to 40% reduction in technical support calls, says Hardy.

Factiva, a New York-based joint venture of Reuters Group PLC and Dow Jones & Co., uses FAST to analyze 5 million news items per month from 10,000 sources and feed that information to 1.8 million paying business subscribers. Factiva uses a four-step automated and manual process to ensure that everything is correctly categorized. Customers can receive the data either as an XML feed or a Web service for integration into their corporate intranets, or their CRM or competitive-intelligence systems.

"We work with the clients to integrate the content behind their firewall and build out their own intranet," says Clare Hart, president of the Dow Jones Enterprise Media Group. "FAST fit the profile for both the commercial product and the relationship we could have with out clients."

Spending on enterprise search is growing much faster than overall IT spending, according to Forrester's Brown. Nearly all major enterprise search vendors experienced a 65% to more than 100% growth rate last year, he says. The question is whether it will remain as a separate software category for long. "Enterprise search is getting embedded in a lot of different solutions, like business intelligence, compliance, e-discovery, surveillance, security, fraud detection and quality management," Brown says. "There is a whole range of business-critical applications that go beyond just document retrieval, and search is playing an important role there."

Search vendors, therefore, may wind up becoming absorbed by larger companies. For example, Yahoo bought Inktomi in 2003, and Oracle Corp. bought TripleHop Technologies Inc. last year and plans to integrate that company's search functions into its database line.

"There are indicators that information access is moving toward absorption into applications," says Gartner's Knox. "This seems to be how Microsoft is heading with Vista and Office 12, and may be what the bigger players such as IBM and Oracle go for." ▸

Robb is a Computerworld *contributing writer in Los Angeles.*

BACK TO THE WEB

WHILE MANY organizations switch from a Web search to an enterprise search engine, the FirstGov portal has gone the other way. FirstGov, which acts as the official home page for the U.S federal government, is managed by the General Services Administration.

When the site launched in the fall of 2000, it used a custom search engine created by a foundation established by Eric Brewer, founder of search engine pioneer Inktomi. Then, in the spring of 2002, the site started using an enterprise search engine from Fast Search & Transfer that would index the data contained within all the government agency sites.

"We were crawling all the government sites ourselves," says Bob Keating, the GSA's search and program manager. "The model didn't scale well to what we needed to do in searching the entire government."

This past January, the site reverted to a Web search model. FirstGov now uses Vivisimo Inc.'s Clusty Web search technology with Microsoft Corp.'s MSN Web index. MSN already crawls all the government sites for its own index.

"We are using the MSN index filtered for government sites rather than doing any crawling ourselves," says Keating. "Rather than reinvent the wheel, we get the data from somebody who already does it really well."

As a result, the GSA has replaced the 24 servers it was using for the FirstGov site with a service hosted by Pittsburgh-based Vivisimo, cutting its costs in half. In the process, the number of official government documents available through the site has increased from 8 million to 40 million. It also provides searchers with easier access to relevant information by clustering the search results by category. For example, the search results page now has a tab listing federal forms that match the query.

"We still use [Autonomy's K2] enterprise search for the GSA.gov site," says M.J. Pizella, associate administrator of the GSA's Office of Citizen Services and Communications. "But for FirstGov, we wanted to get information quicker, without having to get into the agency sites, and Web search allows us to do that."

– DREW ROBB

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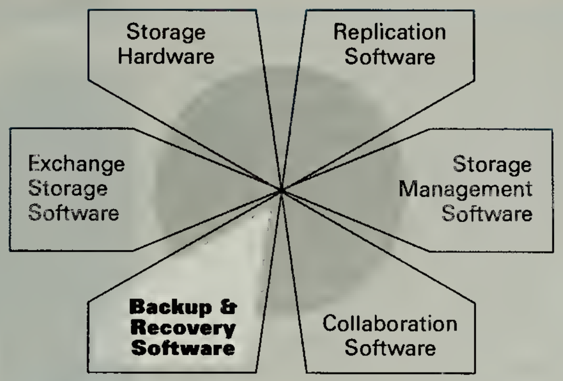
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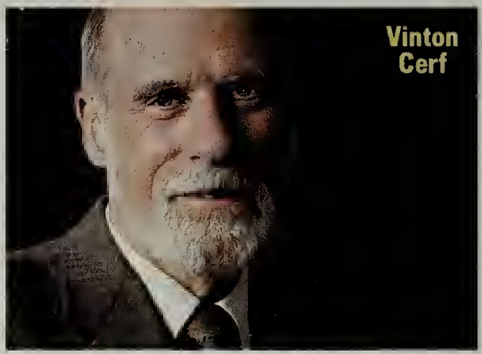
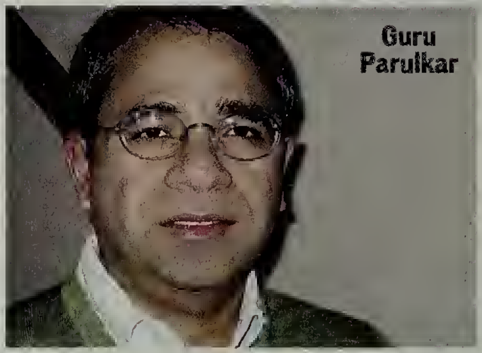
Net Gains

Internet experts **Robert E. Kahn**, **Vinton Cerf** and **Guru Parulkar** assess the evolution of the Internet so far and speculate about its future.

WHEN ROBERT E. KAHN *and* **VINTON CERF** *created the TCP/IP protocol, they laid the foundation for today's Internet.* **GURU PARULKAR**, *a 20-year veteran in the networking industry, is program director at the National Science Foundation's computer and network systems division, where he is working on the GENI Initiative, a research testbed for the future Internet. Kahn and Cerf are also playing a role in the Internet's future: Kahn is chairman, CEO and president of the Corporation for National Research Initiatives, and Cerf is chief Internet evangelist at Google Inc.* Computerworld's *Robert L. Mitchell asked each of them to comment on the Internet's past, present and future.*





Q Is the Internet today better than it was five years ago?

CERF: The Internet is larger than it was five years ago by a factor of at least five. It continues to function reliably, and the underlying systems have higher absolute capacity. It continues to expand to support new applications, including real-time interactive games, voice, collaborative tools and peer-to-peer applications.

New content is surging into the network, and search tools have become much more sophisticated. The network continues to support new applications that seem to be invented daily. Wireless access has proliferated, and mobile phones are increasingly Internet-enabled. Geolocation services are becoming more visible.

Q In the Internet, intelligence resides at the edge. In today's telecommunications networks, it resides in the network. As the two worlds converge, can these models continue to coexist?

PARULKAR: In the original Internet model, the network is [not] just a packet transport mechanism. There is a lot of intelligence inside the network, in the form of servers and devices. In the future, we have to think about balance. How much intelligence? Clearly, there is this recognition that we have to revisit this architectural principle.

We are talking about three scenarios. One is the Internet may borrow some of the ideas [of the telecommunications networks]. Another possibility is that a parallel infrastructure emerges. A third possibility is the telephone network becomes one and the same thing as the Internet. The telephone network is now merging with the Internet. The Internet may merge into the telephone system 20 years down the road.

KAHN: I tend to think of the Internet as not having edges. Increasingly, the network providers will see ways of doing intelligent things within their nets. The real question will be, to what extent can they work with application providers to do a better job of meeting user needs?

Q What has surprised you most about the way in which the Internet has evolved?

KAHN: The introduction of the personal computer suddenly meant that the number of machines that could be connected was thousands, tens of thousands, more. Some argue that we have close to a billion users on the Internet. That was a big surprise. I take

Historical Nodes on the Net

1957: The U.S.S.R. launches Sputnik, the first man-made satellite. In response, President Eisenhower creates the Advanced Research Projects Agency (ARPA) within the U.S. Department of Defense.

1962-68: Packet-switching networks are developed.

1969: The Defense Department commissions the Arpanet for research into networking, with the first node at the University of California, Los Angeles, followed by nodes at Stanford University; the University of California, Santa Barbara; and the University of Utah.

1971: The first e-mail is sent.

1973: The first global connections to the Arpanet are established, with nodes at University College in London and Royal Radar Establishment in Norway.

1974: Cerf and Kahn publish "A Protocol for Packet Network Intercommunication," which is now recognized as a groundbreaking document describing how to connect several different packet-switching networks.

1976-82: Kahn and Cerf lead the way in the development of the TCP and IP protocols for Arpanet; the protocols will become the backbone of the Internet.

1984: The number of hosts exceeds 1,000. The Domain Name System is introduced.

1989: The number of hosts exceeds 100,000.

1990: Arpanet ceases to exist, symbolizing the commercialization of the Internet. The number of hosts exceeds 300,000.

1991: The World Wide Web, developed by Tim Berners-Lee, is released by CERN. The Web provides a distributed hypermedia system for the Internet.

1993: The graphical browser Mosaic is developed by Marc Andreessen and his team at the National Center for Supercomputing Applications. The White House and the United Nations come online.

1994: Local communities, the first being Lexington and Cambridge, Mass., come online as the Internet begins to touch society in many ways and at many levels.

1998: Microsoft jumps into the network service provider and browser market.

2006: The Internet is ubiquitous, with wireless access and millions of nodes, and is becoming a primary transaction vehicle of the global economy.

it as a matter of pride that when we did the original design, we had ideas of scalability and modularity in mind. The fact that it did work was not a surprise, although we hadn't expected it.

The misuse of the Net was somewhat unexpected. I did not think people would misuse it as much as they did.

Q What are the challenges with using the Internet today for business communications?

CERF: The Internet continues to be challenged by viruses, worms and Trojan horses, [and] denial-of-service attacks against hosts and infrastructure. It has adapted to provide virtual private network access for businesses, but firewalls and network address translation devices sometimes interfere with VPNs, packet voice services and the like. Authentication of users is still a challenge, and there is a need for more end-to-end confidentiality. Deployment of IPv6 is still slow in most of the network. The problems are severe and lie at several layers in the protocol hierarchy as well as in the quality of the operating system software that is so readily penetrated. Operating system and application system designers have not taken into account adequate measures for authentication for purposes of access control, leaving many systems open to exploitation.

KAHN: Security was something that we thought about in the early days, but there were so many obstacles to trying to deploy strong security that we just didn't go down that path. I wouldn't say there's no security but . . . it could be better. I would like to see the whole issue of identity management addressed so you can authenticate information when you get it. But I don't know [that] that's a limitation. It's just an aspiration for something that could be better.

PARULKAR: If you look at mobile wireless, the Internet was not designed for this degree of mobility. The IP address is identical to an attachment point where you interface to the network. When people are constantly moving, your attachment point is constantly changing. So there is this issue of, can you continue to use IP addresses with this architecture, or can you do better by decoupling those two things? You may have to have another level of addressing.

Q How will those problems be fixed?

PARULKAR: Security problems, spam, robustness — these are not problems you can fix the way we are doing it, by adding more and more boxes, like firewalls and IDSs. Some are inherent to the architecture. The assumption of the Internet was that all of the traffic was friendly. We know that doesn't work. There are no easy architectural mechanisms to fix it.

CERF: I think some basic rethinking of security and some built-in primitives are needed in the architecture to tackle this problem adequately. Adding features won't, in themselves, solve the problem without some serious reworking of the design of the system.

Q What do you think the Internet will look like in 10 years?

CERF: Two [billion] to 3 billion users, more devices on the network than people, huge archives of entertainment content, lots of third-party services to manage Internet-enabled devices, lots of wireless access, lots of high-speed fiber/cable for consumers, mobiles fully Internet-enabled, much more refined search services with significant vertical components, much more collaborative interaction, significant financial transactions via the Net, more diverse online advertising, and an operational two-planet interplanetary Internet — Earth, Mars — with plans to extend to the outer planets.

KAHN: It's a medium of social interaction. Of business interaction. Of information access. It's also very fragile in that it requires cooperation around the world for it to work. I hope that will continue.

The potential for business-to-business interaction [hasn't] been exploited to nearly the extent that it could be. Today, most people access business Web sites to see what companies are offering, maybe place orders. But that's just the very early start.

The ability of the Net itself to facilitate bringing together virtual organizations will be very significant. It isn't quite here yet, but I think that's one of the next steps we'll see.

PARULKAR: The research community has to look beyond the Internet, and that is what GENI is. GENI has two parts. One is research. The other is an experimental facility in which [researchers] can demonstrate and deploy technologies at scale. There are a half-dozen experimental infrastructures that the NSF has supported. PlanetLab is a kind of a global experimental infrastructure. It supports what are called virtual overlay networks on top of the Internet.

The paradigm is one physical infrastructure that could be used by my people's teams at the same time to deploy their own ideas — a physical infrastructure that you can slice into virtual slices. Within that slice, they can deploy their own protocol stack and services and demonstrate that. The power of it is you can give different people a slice of a resource, and they think the whole resource belongs to them. Everybody agrees it's a great means for an interesting research framework. But some people are saying maybe that's a great operational framework as well.

What users want is to be able to create their own virtual network with its own behavior, security, robustness, QoS. Rather than point-to-point transport, if you give them the mechanism by which they get their own virtual network, corporations will be happier. Providers are able to sell something which is more value-add than VPNs. They can provide even more sophisticated services to customers. ▸

Automagic CODE Generators

Even nonprogrammers can 'program' with these tools.

BY GARY ANTHES

FUTURE WATCH

TWENTY YEARS AGO, software engineer Fred Brooks famously observed that there was no silver bullet that could slay "the monster of missed schedules, blown budgets and flawed products." Today, the creation of software might seem as expensive, trouble-prone and difficult as ever.

And yet progress is being made. While there is still no silver bullet in sight, an array of new techniques promises to further boost programmer productivity, at least in some application domains.

The techniques span a broad spectrum of methods and results, but all are aimed at generating software automatically. Typically, they generate code from high-level, machine-readable designs or from domain-specific languages — assisted by advanced compilers — that sometimes can be used by nonprogrammers.

Gordon Novak, a computer science professor at the University of Texas at Austin and a member of the school's Laboratory for Artificial Intelligence, is working on "automatic programming" — using libraries of generic versions of programs, such as algorithms — to sort or find items in a list. But unlike traditional subroutines, which have simple but rigid interfaces and are invoked by other lines of program code, his technique works at a higher level and is therefore more flexible and easier to use.

Novak's users construct "views" that describe application data and principles and then connect the views by arrows in diagrams that show the relationships among the data. The diagrams are, in essence, very high-level flowcharts of the desired program. They get compiled in a way that customizes the stored generic algorithms for the user's specific problem, and the result is ordinary source code such as C, C++ or Java.

What my program is saying is, 'I can tailor the algorithm for your application for free.'

GORDON NOVAK,
PROFESSOR OF COMPUTER SCIENCE, UNIVERSITY OF TEXAS AT AUSTIN

Novak says he was able to generate 250 lines of source code for an indexing program in 90 seconds with his system. That's equivalent to a week of productivity for an average programmer using a traditional language, he says. "You are describing your program at a higher level," he says. "And what my program is saying is, 'I can tailor the algorithm for your application for free.' "

Novak says he intends to expand the system to allow construction of larger programs and eventually to turn it into a commercial product. "I hope to move programming up a level, from the writing of code to programming in terms of abstractions, such as physical models, financial models and so on," he says.

Douglas Smith, principal scientist at Kestrel Institute, a nonprofit computer science research firm in Palo Alto, Calif., is developing tools to "automate knowledge and get it into the computer." Kestrel's development system works with two kinds of knowledge: the skills and techniques that programmers have — about data structures and algorithms, for example — and the application knowledge that an end user has.

Specware Features

A programmer starts with Kestrel's Specware, which is a general-purpose, fifth-generation language that specifies a program's functions without regard to the ultimate programming language, system architecture, algorithms, data structures and so on. Specware draws on a library of components, but the components aren't code. They are at a higher level and include design knowledge and principles about algorithms, data structures and so on. Smith calls them "abstract templates."

In addition, Specware can produce proofs that the working code is "correct" — that is, that it conforms to the requirements put in by the user (which, of course, may contain errors). "Some customers want that for very-high-assurance applications, with no security flaws," Smith says. Kestrel does work for NASA and U.S. military and security agencies.

I want to allow programmers to write policies at a very high level and then have them automatically enforced.

DOUGLAS SMITH,
PRINCIPAL SCIENTIST, KESTREL INSTITUTE

Specware is essentially a productivity tool for programmers, producing several times as many lines of code as is actually written by the programmer. But Kestrel has something at an even higher level — a language called Planware that's specifically for creating scheduling applications (see chart).

Smith says users at the U.S. Air Force, who know about airplanes, runways and air bases but not software, used it to create an aircraft scheduling system.

"It's a language for writing down problem requirements, a high-level statement of what a solution should be, without saying how to solve the problem," Smith says. "We think it's the ultimate frontier in software engineering. It's what systems analysts do."

In the future, Kestrel will enhance its techniques by incorporating some of the concepts of aspect-oriented programming that deal with issues that cut across programs, such as activity logging and authentication. When users make a policy change related to such cross-cutting issues, it can entail expensive code changes at many places in a system.

"I want to allow programmers to write policies at a very high level and then have them automatically enforced," Smith says. "How to put cross-cutting issues into designs is one of the most important things going on in software engineering right now." ▶

CODE EXPLOSION

"The whole history of computer science has been toward increasingly high-level languages – machine language, assembler, macros, Fortran, Java and so on – and we are working at the extreme end of that," says Douglas Smith, principal scientist at Kestrel Institute.

The higher the programmer goes, the less code he needs to write and the less he needs to know about algorithms, data structures and hardware.

When Kestrel and the U.S. Air Force developed a mission-scheduling application, analysts using Kestrel's Planware language were able to produce 17 lines of Specware code, 74 lines of Lisp code and 189 lines of assembler for each line written in Planware.

– GARY ANTHES

LINES OF CODE	LANGUAGE	LANGUAGE DESCRIPTION
2,500	Kestrel Planware	6GL domain-specific requirements-modeling language, partly graphical, partly textual
43,000	Kestrel Specware	5GL general-purpose functional programming language
186,000	Common Lisp	3GL programming language
472,000	Assembler	Obtained by disassembling the compiled Common Lisp code. Code can be proved to be correct per requirements.

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Expecting All-in-One Security Headaches

The state is imposing all-in-one security appliances on our manager's agency, and she sees more cons than pros. By C.J. Kelly

SECURITY MANAGER'S JOURNAL

SECURITY PRODUCTS are converging, and the state government wants us to hop on board. The bureaucrats have good reason to seize what they see as an opportunity.

Two years ago, the state legislature refused to approve the purchase of firewall technology for state agencies, such as the one I work in. Is it any wonder governments fall on their faces? You want legislators to be careful with taxpayers' money, but how can they not understand that firewalls are important?

Convergence in the form of all-in-one appliances, I am told, makes business sense. It costs less and produces more, support is better, it's easier to manage and so on. I'll believe it when I see it. My concern is that, should an all-in-one appliance be compromised (and anything can be compromised), you won't just have a problem with your firewall, your virtual private network, your security information management system, your demilitarized zone, your antivirus tools, your intrusion-detection system, your Web filtering or your intrusion-prevention system. You'll have a problem with all of them.

Security must be layered to be effective. Plunking in a single device at each site is not a good idea. But as our earlier firewall fiasco suggests, we have had problems getting funding for many of the individual devices and tools that would let us follow the "defense in depth" model. Apparently, we have the OK to purchase the all-in-one devices and deploy them to all of our sites. Well, if that's what we can get approved, at least we're doing something to move forward.

The drawbacks of all-in-one appliances are related to technical matters, performance and security. In-line deployment would be best for the appliance's intrusion-prevention features, but that makes it a single point of failure. In that case, you would probably want two devices in fail-over mode. The alternative — proxy-style deployment — limits packet inspection and firewall configuration. As for performance, the number of modules or functions applied to data traffic will affect the appliance's throughput, unless there are multiple CPUs devoted to particular functions rather than a single-purpose CPU. I've already discussed security. Compromise the box, and own the network? Maybe.

On the other hand, managing a multitude of single-purpose security systems takes a lot of manpower. A farm of similar multipurpose appliances sounds a lot easier to manage and may take only one or two trained security administrators. And if we could do things like Web filtering, firewall configuration and traffic encryption at the gateway, we might be more effective in protecting the network against malware, viruses, worms, adware, spam, Trojan horses, denial-of-service attacks, hacking attempts and all the other things we guard against.

> Security must be layered to be effective.

No Guarantees

Why don't I have any faith in these types of appliances?

I told my boss, "We need to do this, but I can't guarantee that this product will do what it is supposed to do." We can't do a test-drive ourselves before we buy, because the state-level guys already did that. The vendor is a small company that doesn't want to go through testing with dozens of little state agencies. Its goal is to sell some of its stuff fast so it can say that it landed a deal. So, here we are. I feel like we are buying blind and following the state's lead like sheep.

I predict that the drawbacks of these appliances will become apparent over time, forcing vendors to go back to single-function devices. Eventually, though, the pendulum will swing back, and we'll see new all-in-one appliances that are better, faster and smarter than the ones being hawked today. This sort of back-and-forth isn't unusual. Look at what's happening in the telecom sector — first, AT&T was busted up, then lots of smaller phone companies joined it in the marketplace, and eventually those companies began gobbling up one another. Today, we're looking at the prospect of a new AT&T dominating once again.

On the ground here in my state agency, we have to decide on the types of functionality we need the most and use the appliance accordingly. We will certainly want firewall functionality (maybe even most state legislators would agree with this assessment at this point), but we'll have to decide between intrusion detection and intrusion prevention. Intrusion detection, which is off-line and passive, is somewhat at odds with firewalls, which block traffic based on rule sets. The in-line configuration of intrusion prevention might work better in that regard. It's the sort of question we'll have to have ready when we meet with the vendor for a demo next week. It should be interesting.

I'm also interested in the company that we'll be dealing with. Having never heard of it, I did some research on Google. Apparently, it hasn't gotten much press. Its own Web site doesn't even have any information about its founders, board of directors, company history or financials.

Another type of convergence could help brighten this picture. Maybe this little company will be acquired by one of the bigger security vendors in the years to come, which would at least ensure that our agency receives support down the road. Ideally, one of the companies that I am familiar with and trust — like Check Point, Cisco or Symantec — would step in to fill this role. I'm not saying these vendors are perfect, but they have track records.

By my calculation, single devices installed at each of our agency's major sites would cost a total of about $30,000. If we have to double that number to ensure fail-over capability, that's a lot of dough for a small state agency. If deployment extends to our smaller sites, the cost gets close to $100,000 with fail-over capability. Why, oh why, didn't they just let us buy some Cisco firewalls? ▸

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "C.J. Kelly," whose name and employer have been disguised for obvious reasons. Contact her at mscjkelly@yahoo.com, or join the discussions in our security blogs: **computerworld.com/blogs/security**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

Researchers Prove 'Virtual' Threat

Researchers from Microsoft Research and the University of Michigan have developed proof-of-concept code to demonstrate how to hide rootkit software in virtual machine environments. Taking advantage of known vulnerabilities, the rootkit places a virtual machine monitor beneath Windows or Linux installations. The rootkit, dubbed SubVirt, is undetectable because security software doesn't have access to its state.

File Deletion Was Computer Fraud

A federal appeals court has ruled that employees can't delete files from a company computer before leaving their jobs. International Airport Centers LLC, believing that Jacob Citrin began doing personal business while still employed, hoped to find incriminating evidence on his laptop. A lower court initially threw out the case against Citrin, but the appeals court said he had violated the Computer Fraud and Abuse Act by deleting files.

Data Miner Settles

Datran Media Corp. has agreed to pay $1.1 million to New York to settle a lawsuit filed by the state's attorney general. The lawsuit alleged that Datran mined data from companies that had pledged not to share the information. Datran allegedly knew of the pledges but nonetheless sent spam to about 6 million e-mail addresses collected from those companies. Under the agreement, Datran must cease using improperly obtained e-mail addresses, destroy those it has and buy no lists without first checking to see if the data has use restrictions.

The Paradox:
The threat you need to see coming is the threat you can't see coming.
The Answer: Proven security.

Vulnerability Management
Intrusion Prevention
E-Mail & Web Security
Anti-Spam
Anti-Spyware
Anti-Virus

Zero-day threats. Modified threats. Encrypted attacks. With McAfee®, you're protected. Our comprehensive security solutions with integrated intrusion prevention technology proactively protect your systems and networks. It's the same technology that has made us a leading security partner to the U.S. military. Backed by more than 15 years of experience protecting and supporting our customers, McAfee's software, hardware, and services are a proven way to secure your business. Learn more at www.mcafee.com/enterprise

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BRIEFS

Microsoft, Radvison Allow SIP Integration

■ Microsoft Corp. and Fairlawn, N.J.-based Radvision Inc. announced a licensing agreement to give third-party developers the ability to write software that allows integration of Microsoft Office Live Communications Server (LCS) with non-Windows communications systems that comply with the Session Initiation Protocol (SIP). Phones and other applications such as instant messaging services could be connected to LCS under this scenario. General availability of the SIP extensions to LCS will be in the second half of the year.

RSA to Release Updated ID App

■ RSA Security Inc. in Bedford, Mass., has announced that RSA Federated Identity Manager 3.0, which allows the use of secure, trusted identities for communications, will be available in the second quarter. The new version includes support for the Security Assertion Markup Language 2.0 protocol as well as improved manageability and scalability, a redesigned Web browser-based graphical user interface and new tools for testing federated connections, according to the company. The software can be integrated with a wider range of Web application servers than previous versions. It's priced on a per-federated-connection basis at about $50,000 for three connections or $100,000 for 10 connections.

New SGI Blades Use FPGA Technology

■ Silicon Graphics Inc. in Mountain View, Calif., has started producing blades that use Xilinx Inc.'s Virtex field-programmable gate array (FPGA) technology. FPGA increases performance by extracting some application algorithms and processing them separately. The SGI RASC RC100 computation blade is also designed to work with SGI's existing Altix servers. Pricing starts at $22,750.

ROBERT L. MITCHELL

Why Good Technologists Are Hard to Find

AT the recent *Computerworld* Premier 100 conference, IT leaders searched for a clear pathway through many challenges: the rising tide of globalization, offshoring, mergers and acquisitions, and rapid technological change. Attendees debated how to make postmerger IT integration projects move more quickly and how to consolidate infrastructure while innovating in areas such as enterprise data warehouses and analytics applications that can cut costs and generate revenues.

One of the more perplexing conundrums, and an area where the answers should be clearer, is the challenge of finding enough highly skilled technologists. "The shortage of IT talent is a major challenge to staying competitive," lamented one P100 honoree in a panel discussion. But where IT sees a shortage, the public may have a different view.

ROBERT L. MITCHELL is a *Computerworld* national correspondent. Contact him at **robert_mitchell@computerworld.com.**

In the broadest sense, there is no shortage. Technically speaking, there is exactly enough trained IT talent in the U.S. market to fill all available positions at the current salary levels. That doesn't mean that the labor market isn't tight or that it's not difficult to find a qualified engineer in Plano, Texas. But those who put all of the blame on public schools, higher education and a lack of interest by the next generation are forgetting something: Students have always poured into the most lucrative and promising careers. If IT salaries doubled tomorrow, college students might give IT another look and start switching majors; the flow of newly minted technologists would quickly increase.

If only it were that easy. Money is just part of the solution. Today's students need to know that IT is a viable long-term career path. Unfortunately, industry and the media have been complicit in propagating the myth that IT is a dead end. First, the dot-com crash shattered the illusion that those in high-tech jobs would always emerge from economic turbulence unscathed. Now, students are hearing that a four-year degree in programming or engineering doesn't matter because all of those jobs will eventually go offshore to foreign workers at very low wages. A generation has been dissuaded from pursuing what is in reality a very promising career choice. But they shouldn't have been, and here's why:

■ **IT has become vital to business profitability.** At Harrah's Entertainment, for example, projects that are part of an ongoing operational CRM initiative are producing a higher internal rate of return than would adding buildings and infrastructure, and the CRM projects are generating revenue increases of 10% to 50%. Those initiatives depend on IT, including data warehouse and business intelligence technologies.

■ **The fast pace of technological change keeps IT careers interesting.** As the costs of processing power, storage and connectivity continue to drop, more and more business processes are being automated. IT is and will continue to be a growing part of business.

■ **The threat of offshoring is overstated.** Globalization is indeed redistributing some IT jobs. Many positions — especially those that can be virtualized — are migrating to low-wage locations. But many aren't going anywhere. Ultimately, all business is local. Cultural, proximity and time-zone limitations do matter because they can affect customer service, customer trust and customer loyalty. Perhaps that's why Dell is expanding its call center in Oklahoma instead of New Delhi. Meanwhile, broadband and voice over IP are giving more U.S. workers the agility to compete by working from home in virtual call centers.

■ **The globalization of IT is an opportunity.** Global businesses are moving some highly skilled IT jobs into overseas offices, placing key human resources closer to customers in each market. Some view this as an exodus of skilled jobs from the U.S. But the idea that all highly skilled IT jobs in a global company should remain centralized here is as ridiculous as assuming that all of those jobs will go to India. The good news is that the next generation of IT professionals will find a global job market with opportunities to live and work in many different countries.

■ **Demand for IT workers in the U.S. will remain strong.** The H-1B visas that enable foreign workers to take high-tech jobs are often viewed as a threat to U.S. workers, rather than the stopgap measure they are. Former Intel CEO Craig Barrett has stated that wage differentials aren't the issue and that Intel would hire more U.S. engineers if it could find them. Educated and talented IT professionals are in demand no matter where they're from. That sentiment was backed up by IT leaders at the Premier 100 conference, where 70% said that they hire the most qualified workers, regardless of citizenship.

The future for IT is brighter and the playing field more level than the public is led to believe. ▸

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MANAGEMENT

03.20.06

It's Not Easy Being Green

Eco-friendly or "sustainable" computing is an idea that's been catching on very gradually. But its benefits will become more apparent over the next few years. Here's what it's all about. **PAGE 36**

Q&A

Managers' Forum

What do you do when your manager wants you to explain highly technical work in a sound bite? Paul Glen has some suggestions. He also looks at how to deal with the brilliant techie who can't hit a deadline. **PAGE 38**

OPINION

Automated Bill Paying: Have We Gone Too Far?

In the early days of IT-enabled online bill paying, Barbara Gomolski was a gung-ho advocate. But she's recently developed a more conservative strategy regarding this "improvement." **PAGE 40**

RUSH TO JUDGMENT

U.S. firms are adopting the 'Colin Powell' approach to IT buying: short lists, fast tracks and magic quadrants. **BY GARY ANTHES**

GREG FARMER has cut Boeing's list of preferred IT suppliers in half.

DALE DEGABRIELE

THE DAYS when nobody got fired for buying IBM are long gone. But these days, selecting IT products is becoming ever more complex as vendors and their offerings proliferate. Buyers are responding to the difficulty in two ways: by limiting choices to a short list of preferred suppliers, and by finding ways to fast-track the product selection process.

But shortening what was once a painstaking (and often painful) evaluation process introduces risks that must be carefully managed, acknowledge fast-trackers.

Since 2000, The Boeing Co. in Chicago has whacked its list of preferred IT suppliers in half, to 40 companies. Greg Farmer, director of IT procurement at the $52 billion company, says that has helped Boeing deal with the complexity of the supplier landscape, but the complexity of the stuff it buys has not decreased.

"In the past, we'd go out and do a request for information, learn about the companies, read about them, and after this exhaustive study we'd say, 'OK, now we'll go to these five suppliers with a request for proposals,' " Farmer says. "More and more now, we look at the Gartner Magic Quadrant [see graphic, next page] and say, 'Who are the top players?' and then send the requests for proposals out to them."

It isn't just the complexity of vendors and products that's driving Boeing's buying practices. "There is so much pressure at Boeing to reduce costs and be lean and efficient," Farmer says. "We don't have the time, energy or resources to duplicate what [firms like Gartner] have already done."

Another trend, he says, is to see products through the eyes of the business rather than the lens of technology. Indeed, his 60-person IT buying team is not populated with technologists and does not report to the CIO. They are business people with IT buying experience, and they report to a vice president for supplier management.

Different Strokes

When MIT recently looked to buy business intelligence software, CIO Jerry Grochow resisted advice to do a very detailed analysis of the many potential vendors and their BI offerings. Instead, he just picked Hyperion Solutions Corp. "We had some people around MIT who had used Hyperion elsewhere, and they were very satisfied with it. And it was clearly one of the market leaders," he says.

Do As We Say, Not As We Do

CAREER EDUCATION CORP. in Hoffman Estates, Ill., leans toward the expedited procurement philosophy. "We are a fast-paced company, and my experience has been that by the time you get done evaluating everything, the business has changed," says CIO Mark Griesbaum. "We have been very successful in our IT group because we take everything in very manageable chunks that can be delivered in a timely fashion."

He says limiting the number of vendors a company buys from simplifies choices, contributes to uniform standards and encourages those select vendors to offer executive briefings, technology previews and other kinds of preferred services.

But Griesbaum warns of hubris when the IT shop buys for itself. He says IT may make the business units go through detailed justifications for products but then forget the rules for its own purchases. "When you get a bunch of technical folks together . . . they get enamored with the technology," he says.

He recalls buying a software development and testing tool that didn't work out completely as planned. "We didn't go through the rigor that we should have and maybe trusted some things the vendor said a little too much," Griesbaum explains. "Sometimes we are our own worst enemy."

– GARY ANTHES

Avoiding Crackups on the Fast Track

- At a high level, **pick a vendor whose product suite maps well** to your internal IT architecture.
- **Bring in one or two products** for no-obligation quick prototyping.
- **Follow documented policies,** even when taking shortcuts.
- **Let a market research firm** do some prescreening.
- **Talk to users** at other companies.
- Regardless of approach, **make sure you listen to your users.**

MIT limited its risk by bringing in the BI product for a "quick prototype," Grochow says. "Rather than spending $20,000 on analysis of the feature sets of alternatives, I said, 'Let's bring one in and spend $20,000 to do something with it.' We learned more by doing that."

Still, Grochow acknowledges that such a rapid-fire "try it then buy it" approach is not always possible or appropriate. MIT will soon spend up to nine months and $500,000 evaluating student information systems — about as mission-critical as IT gets on campus. "Other schools have spent $30 million to $40 million on them, so we are going to go through a significant study, lots of review of alternatives, detailed visits to other places that are using them and so on," Grochow says.

ING Group NV has offices and CIOs all over the world, and the CIOs sometimes come to Raymond Karrenbauer, group chief architect, for help with their IT purchases. He says doing in-depth analyses of alternatives is common practice in the European and Asian business units. "They spend time very diligently looking at accuracy, predictability, all the features and requirements, until they have a near-perfect set of details," he says. Then the buying decision must be approved at multiple levels in the company.

But North American companies are more likely to apply the "Colin Powell" philosophy to IT buys. The former secretary of state, according to Karrenbauer, "used to say that as long as he had 70% of the data, that's good enough to make a decision and just move forward." The difference reflects a U.S. business culture of moving very quickly, but both paths work well for their respective regions, he says.

Karrenbauer says he can select vendors and products quickly because of the homework he does beforehand. He starts with an internal system architecture for the corporation that factors in business requirements and forecasted needs. The resulting framework of business needs against architectural standards makes the actual product selection pretty straightforward, he says. Certain vendor "footprints" will be readily seen as good fits, while others obviously are not, he says.

Dennis L'Hereux, CIO at Rockford Health System in Rockford, Ill., says his company has gone from a philosophy adopted more than 10 years ago of buying best-of-breed products for each function to one in which preference is given to buying suites of integrated products from just a few vendors. Best-of-breed products are likely to better address the needs in question, but they often require the use of integration tools, "and that requires a lot of effort," he says.

For example, when L'Hereux recently looked for a medication safety software package, he considered just the four offerings from preferred vendors, not the 15 to 20 that were available. But those four contenders each received a detailed evaluation.

Managing Expectations

The detailed analysis helped L'Hereux choose the right package, of course, but it had a side benefit as well, he says. "It's an exercise for the people who will use the system to understand what it will do and what they want it to do," he says.

That exercise can head off unpleasant user scenarios. "They all want everything, but when they get it, they don't want to use it because it doesn't work like the old way," L'Hereux says.

Or another unwanted user reaction: "Bring it in, and then I'll tell you why I don't want it," he says.

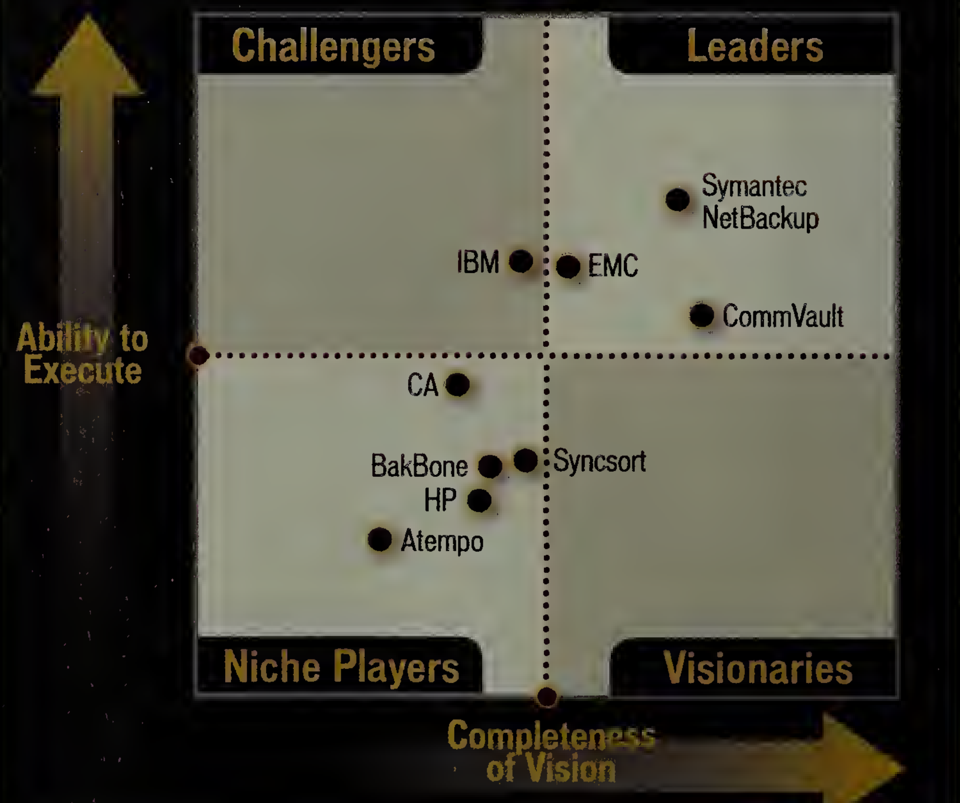
Like Boeing, Rockford Health relies on market research to provide some guidance. L'Hereux taps into the analyses of Klas Enterprises LLC, an IT product research firm for the health care industry, to help him prescreen products and vendors.

L'Hereux says it was once standard practice for IT shops to put together "very detailed requests for proposals in three-ring binders with everything we wanted in a system." But in addition to being time-consuming and costly, he says, that process "doesn't materially result in any better decision."

Indeed, says MIT's Grochow, spending a lot of time on an IT buy is no guarantee of success. "People will say, 'Let's examine the details of all 30 alternatives.' Do they come up with a significantly better decision than the person who says, 'Here are the two market leaders; let's bring one of them in here and try it'?"

But doesn't studying every alternative help cover your rear? "It's a hallmark of the more senior manager: You have to be willing to take some risks," Grochow says. "Sometimes the risk is explicit, and sometimes it's implicit. The people doing the detailed analyses are still taking some risks; they just don't *think* they are." ▸

A 2005 'Magic Quadrant' for Backup/Recovery Software



SOURCE: GARTNER INC., JULY 2005

_THE INVASION

_DAY 11: These commoditized clones have taken over. Haven't been outside in days. Living off instant coffee and a tin of breath mints. :-(

_DAY 12: They're breeding. Multiplying. Multiple apps. Multiple databases. They must have a queen.

_Help...me....

It's Not Easy BEING GREEN

Eco-friendly computing is a concept whose payback is slowly catching on. **BY MARY K. PRATT**

CIO William Hill had an admirable, if unanticipated, return on investment when he overhauled the IT infrastructure for Dayton, Ohio: He helped the environment. Hill's strategy included replacing the old setup — a disorganized mix of 80 archaic networked terminals and numerous ad hoc PCs of varying ages and operating systems — with thin clients for 60% of the staff and PCs for the rest, strategically positioned for optimum use. Hill opted for thin clients for technological and cost reasons, but says he saw a corresponding drop in how much energy his organization uses — a drop that saves the city between $60,000 and $90,000 annually.

Hill is not the only one beginning to notice IT's impact on the environment. Other CIOs are starting to talk about how much energy their systems use and how they can be more efficient and thus friendlier to the environment. Even so, the real impetus for green computing — also called sustainable computing — is the green cash that eco-friendly decisions can save.

"There's always a company out there doing something to be eco-friendly, but for most companies, it has to make money sense," says Thomas Bolioli, president of Terra Novum LLC, a consulting company in Watertown, Mass., that advises IT departments on energy efficiency.

Bolioli says companies are starting to better balance their computing requirements with the desire to reduce energy consumption and the corresponding costs. They're employing power management software to power down PCs when not in use, and they're opting for more energy-efficient components, such as LCDs rather than CRT monitors, when refreshing hardware.

Early Sprouts

There's no doubt that sustainable computing is on the rise. A recent conference on opportunities for energy savings, co-sponsored by the U.S. Environmental Protection Agency, drew about 200 attendees, including some from big-name players such as AT&T Inc., Target Corp. and Visa U.S.A. Inc.

"It's great if people do things strictly for the benefit of the environment. But increasingly, the more resonant message is, 'Look, as competitive entities, we have to do more with less. So why not use less electricity as well?' " says Andrew Fanara, team leader at the EPA's Energy Star program, which promotes more energy-efficient IT infrastructures and policies.

The savings can be significant, says Jeff McNaught, vice president of marketing operations at Wyse Technology Inc. in San Jose. His company supplied the thin clients for the city of Dayton, and he says another customer, a Fortune 100 retailer, reports saving $5.7 million annually in electricity costs by using some 70,000 thin clients instead of PCs.

The University at Buffalo, part of the State University of New York system, has an aggressive program to cut overall energy consumption that is estimated to be saving more than $10 million annually. Some of those savings come from green computing, says Walter Simpson, the energy officer at the UB Green program.

UB figures that each computer uses $100 worth of electricity a year, and that doesn't include the costs to power data centers and servers. There are additional costs associated with keeping server rooms and computer workspaces at the right temperature.

To counteract such energy demands, Simpson encourages UB staffers to turn off computers when they're not needed, and he uses power management software to put employees' monitors in sleep mode when not in use. He also tries to hold the line against wasteful practices. For example, when IT workers wanted the facilities department, which houses UB Green, to keep its several hundred computers on at night to accommodate occasional upgrades, Simpson told them to upgrade during the day or pick a specific night to leave the computers on. "We're setting an example," he says.

Aside from power use, there are other green issues in IT. When Robert Rosen recently ordered 130 new computers, he was given a novel option: lead-free components. Rosen, CIO at the National Institute of Arthritis and Musculoskeletal and Skin Diseases in Bethesda, Md., and president of Share, an IBM mainframe user group, says having the choice, which came at no additional cost, represents a growing concern about the toxins in computer products.

Troubling Toxins

According to the Silicon Valley Toxics Coalition in San Jose, computer equipment contains a host of toxic materials, including lead and cadmium in circuit boards, lead oxide and barium in CRTs, mercury in switches and flat screens, and brominated flame retardants on printed circuit boards and cables.

In addition, a 2005 study conducted by Greenpeace International found that most computers collected for recycling in the U.S. are illegally shipped to disassembly sites in China and India, leading to contamination of the environment in those countries.

Government agencies and nonprofits are pushing for changes, and they're being joined by some IT executives and technology manufacturers. NEC Display Solutions of America Inc., for example, is scheduled to be the first monitor company whose full U.S. product line will be lead-free. It's also educating consumers about green issues. Richard Atanus, vice president of product development and customer service and support at NEC, says manufacturers and users will face increasing demands for toxin reductions and recycling as European Union standards take effect this summer and more U.S. states start to pass regulations.

Those regulations will prompt changes in corporate IT policies, says Joe Wilcox, an analyst at JupiterResearch in New York. "If disposal is an extra cost, then it's a problem that someone has to solve," he says, adding that economics will move companies to demand toxin-free components. "If they can dispose of it easier because there are no potential toxins, then that's a benefit they can appreciate," Wilcox says.

> **Everyone thinks it's someone else's problem to deal with.**
>
> **ROBERT ROSEN,** CIO, NATIONAL INSTITUTE OF ARTHRITIS AND MUSCULOSKELETAL AND SKIN DISEASES

But companies have been slow to adopt wholesale policies to foster green computing. That's because sustainable computing requires more than new products. It demands changes in IT policies and user behaviors, as well as cooperation across departments. And it's tough for IT organizations to deal with those challenges when they're already occupied by day-to-day demands, Wilcox explains.

Still, there is progress. Rosen says government policy requires him to buy Energy Star-compliant computers, which are more energy-efficient than those without the designation. Fanara says he is seeing similar requirements in other organizations.

But Rosen acknowledges that many IT departments don't feel the need for green policies if the CIOs aren't held responsible for the energy costs or disposal fees. "It's one of those issues that spans groups, [so] everyone thinks it's someone else's problem to deal with," he says. "What happens in a lot of places is that nobody pays attention to it until the CFO gets the bills and starts jumping on everybody." ◆

GREEN TIPS

- Enable power management software to put computers in low-power mode when not in use.
- Require workers to turn off printers, monitors, computers and other desktop devices when they leave work.
- Choose specific times for off-hours maintenance.
- Consider energy-efficiency products such as thin clients, LCD monitors or Energy Star-rated PCs.
- Demand components that contain the least amount of toxins, such as those labeled lead-free.
- Buy products from vendors that take them back when your company replaces them to ensure safe disposal.
- Use responsible recyclers that do not export equipment to developing countries.
- Check out *www.computertakeback.com* for more options.

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[MANAGERS' FORUM]

WITH PAUL GLEN

I hope this monthly column will provide a lively exchange of ideas with IT managers. I'll do my best to answer your questions, and some of your responses will run alongside in "Readers Talk Back."

PLEASE SEND YOUR QUESTIONS, COMMENTS AND CRITIQUES TO ME AT **PGLEN@C2-CONSULTING.COM.**

Q **One of the biggest frustrations I've had with many managers is that they always want me to explain things in overly simplistic terms. Often they are asking about highly technical, complex issues that can't be easily turned into a sound bite, yet they insist on artificial simplicity. Why do they do this, and how can I deal with them?**

This represents one of the most common frustrations for — and misunderstandings between — technical people and their managers.

It's also a source of the degradation of respect between managers and their staffs. Managers are frustrated because they believe their people are unable or unwilling to share information about the details of their work. If a manager believes a staff member is unwilling to share information, then a deep mistrust of the staffer's motives develops. The manager assumes that person is trying to gain power through knowledge isolation.

On the other hand, if a manager believes that someone is unable to communicate effectively about the details of his work, he assumes that this person will be limited in his career development.

For technical people, it's equally frustrating, because it's often difficult to encapsulate complex technical ideas in simple language. They assume that if the boss is asking for an oversimplified version of reality, he is either unwilling or unable to understand the nuances of the technical work for which he is responsible. If a staff member believes that his boss is unable to understand what the staffers do, then he will develop the belief that the boss is unqualified to supervise them.

In addition, if staff members believe that the boss is unwilling to invest the time or mental energy required to understand their work, they assume that their boss is lazy and that they shouldn't bother working so hard themselves.

Unfortunately, in most situations, this mess is the result of a true misunderstanding between managers and technical people. Most managers know that they don't completely understand all the details of the technical work they supervise. And most know that it's impossible to summarize such work in less than a paragraph. But what the managers often fail to do is ask the right questions.

Usually, when a manager asks someone to explain a complex technical issue in simple language, what he's really asking for is not a summary or a simplification. What he means to ask is, "What information do I need to understand in order to make good decisions about this issue? And what information do I need to understand in order to communicate effectively with our clients and supervisors?"

This, of course, is an entirely different matter. What is really going on is that managers are trying to understand the information that's critical to performing their jobs. If they were to be more articulate about what they really needed and wanted, a large amount of strain could be removed from the managerial and technical relationship.

Q **I manage a programmer who is technically brilliant but is failing to meet all his deadlines. What should I do?**

First, you need to understand why this person is missing the deadlines. These are the most common reasons:

❶ *Unrealistic deadlines.*
❷ *Lack of commitment to meet deadlines.*
❸ *A misunderstanding about the relative priority of schedule, budget, feature set and quality.*

At times, all of these things are interrelated, but it's most important to understand the source of the problem.

If you set deadlines without the consent of, or validation by, your brilliant technical programmer, they may not be realistic. Moreover, they may not be accepted as real deadlines but merely as estimates. In the mind of a programmer, there's a huge difference between estimates and deadlines.

If your programmer is setting his own deadlines, you may need to challenge him to become more accurate in his estimation and more liberal with buffer time. You may also want to challenge him to treat time as a design constraint rather than a schedule inconvenience. Again, you will also have to be clear with him about the difference between estimating how long something will take and committing to a specific delivery date.

If the deadlines are realistic but he merely lacks the will to meet them, you may have a bigger problem. Brilliance alone doesn't make for a productive employee. There are plenty of geniuses who are significantly underemployed because they lack the will to do more. If this is the case, your programmer may be able to deliver only limited value until he finds his own motivation.

This problem is most easily dealt with if it is a misunderstanding about the relative priorities of schedule, budget, feature set and quality. At the outset of any assignment, you and he should explicitly rank each of these priorities from top to bottom. Remember that as a manager, you can't demand that all four be first priorities. If deadlines are the most important success factor for the project, he needs to know it and adjust his work strategy appropriately. ▸

READERS TALK BACK

More on Project Managers and Sponsors

HI PAUL,

One of the challenges of project management is getting committed, enthusiastic and motivated members for the team. Whether you're a full-time project manager or just given the job to "get this done" in addition to regular responsibilities, someone in authority is giving you the directive.

Right from the start, let the sponsor know what you will need to get the job done. The best tool is the project charter. No matter how small a project is, it's critical for you to have a charter. Identify the sponsor on the charter, thereby making him accountable. Use the charter to clarify and commit to the purpose of the project. It's the sponsor's project; you are just the instrument for the planning and execution.

Tell the sponsor how he can help you make this project successful. Ask the sponsor for help with people you have no control over. He may even have authority over their bosses. If not, let him hash it out with his peers to get you the resources you need.

The people placed on your team will be much more effective if they know that their selection is endorsed by their boss. And your team will be more accountable if they understand that they'll be evaluated on how their performance directly affects the success or failure of the project.

If you're not on the same page with your sponsor from the get-go about his responsibility and accountability on the project, you will be the scapegoat for every delay, failure or problem that arises. You can prevent this by having an upfront relationship with your sponsor. Make the sponsor *work for you*, and your work will be a lot less stressful. – S.M.

Generally, I agree. I think that you really get it right when you say that you need the relationship with the sponsor. If the charter is the documentation of a good relationship, then it's useful. But I've found that the charter can be both well used and abused. If it's an attempt to create a relationship where none exists, it's less likely to be so helpful. – PAUL GLEN

Career Watch

Baseless Optimism?

2%-3%
Percentage of IT jobs being offshored each year.

3%
Growth rate of U.S. IT employment in recent years.

SOURCE: ASSOCIATION FOR COMPUTING MACHINERY, FEBRUARY 2006

The practice of sending IT jobs offshore remains controversial, and the extent of the phenomenon remains murky. The Association for Computing Machinery (ACM), a group of IT professionals and academics, released a report last month that's rather optimistic about the future of IT careers in the U.S., but it was promptly criticized for painting such a bright picture. Association President David Patterson, a professor of computer science at the University of California, Berkeley, told the *San Francisco Chronicle*, **"People who could have wonderful careers in the field aren't even considering computer science because they've got the wrong facts. If you've got the talents, this is a pretty exciting field with lots of exciting things to do."** Patterson's upbeat assessment reflects the study's findings. (It also reflects columnist Robert L. Mitchell's view of IT career opportunities. See page 32.)

The ACM used Bureau of Labor Statistics figures to estimate that new tech jobs are being created in the U.S. as fast or faster than they are being shipped overseas, but the report also decried the lack of reliable figures showing the extent of offshoring. Ron Hira, an assistant professor of public policy at the Rochester Institute of Technology who has studied offshoring, told the *Chronicle*, "The report was a bit overly optimistic. I find it strange that although they admit there's no good data, they come out as optimistic that this isn't that big a deal."

PAGE COMPILED BY JAMIE ECKLE.

Tech Support Salaries on the Rise

Title	2004	2005	Change
Senior support executive	$100,000	$112,500	12.5%
Department manager	$70,000	$75,000	7.1%
Analyst/project manager	$60,000	$65,000	8.3%
Senior support technician	$50,000	$55,000	10%
Field support technician	$50,000	$55,000	10%
Support technician	$40,000	$42,000	5%

SOURCE: ASSOCIATION OF SUPPORT PROFESSIONALS' TECHNICAL SUPPORT SALARY SURVEY, FEBRUARY 2006. DATA SUPPLIED BY 171 PARTICIPATING SUPPORT ORGANIZATIONS WITH A TOTAL OF MORE THAN 12,000 SUPPORT EMPLOYEES.

ASK A PREMIER 100 IT LEADER

Hari Bezwada

PREMIER 100 IT LEADER

TITLE: Program manager, information technology systems

ORGANIZATION: Pentagon Renovation & Construction Program Office, Arlington, Va.

Bezwada is this month's guest Premier 100 IT Leader, answering readers' questions about making career moves. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com and watch for this column each month.

I have worked as a technical support specialist for almost four years. How can I convince employers that I am more than a tech-support specialist? I have a bachelor's degree and applications, networking and programming skills. Above all, do your best in your current job. A good attitude can't be taught like skills can. Managers will recognize a good attitude and make sure you get the skills you need to advance. I make it a point to expose my employees with good attitudes to various job responsibilities so they acquire the skills they need to move up.

You can always discuss your skills with your managers or employers. However, rather than just saying that you have certain skills, offer to utilize them for upcoming opportunities and projects. That shows you have the right outlook.

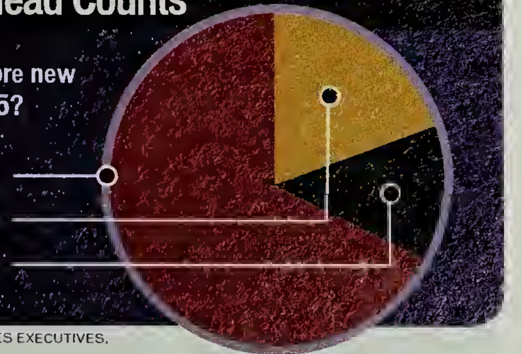
I'm a CIO at a small financial firm. I would like to earn a doctorate, but I'm concerned that it might be perceived as too much education for my position and could be a detriment to my career. Your thoughts? Higher learning should never be construed as an obstacle or detriment to your career. Jobs may come and go, but no one can take away your knowledge and education.

I was a programmer/analyst until 1997 and now want to re-enter the IT field. What's the best retraining option? Which languages, operating systems and job titles are in demand now? My background includes an MBA, a bachelor of science degree in math and experience with Oracle, SQL and Cobol, but I have no experience with object-oriented technology. Oracle and SQL are in much demand. Refreshing your skills in those programs is a good way to re-enter the job market.

Also, a piece of advice: When you pursue training, don't consider only the skills that are in high demand today. By the time you've mastered them, they might be passé. Things change quickly in IT. Always be on the lookout for the next big thing, and never stop learning.

Soaring Head Counts

Compared with 2004, did you hire more new employees, fewer or the same in 2005?



More........... 68.6%
Same.............. 20%
Fewer............11.4%

SOURCE: IOC'S TALENT PULSE SURVEY OF 70 HUMAN RESOURCES EXECUTIVES, NOVEMBER 2005

You're not a real techie until you've had an RFID tag implanted in your arm. OK, that day isn't here yet, but it might be coming faster than you think. The Associated Press reported last month that two workers at a Cincinnati video surveillance company that serves businesses and governments had rice-size silicon chips surgically embedded just beneath the skin on their forearms. They volunteered for the procedure to test the effectiveness of radio frequency identification tags for verifying the identity of workers who have access to vaults where data and images are kept for police departments. You have to wonder, though, what would happen if the wrong RFID tag were implanted. With The Procter & Gamble Co. also in Cincinnati, one of those workers might now be identified as a case of diapers.

BARBARA GOMOLSKI

Automated Billing: Have We Gone Too Far?

HAVE YOU NOTICED that just about all of your creditors are pushing automatic online bill paying in a big way? I'm talking about encouraging customers to have their billed amounts automatically withdrawn from their bank accounts each month.

I actually got a paper bill from my long-distance phone company the other day that informed me of the following: If I wish to continue to receive a paper bill, I'm going to incur an extra charge for that. If I view and pay my bill online, I won't incur the extra charge. This is a move similar to what some airlines have done in imposing a nominal penalty for buying tickets over the phone instead of online.

I know why companies are eager to move customers to automatic online bill paying. It saves them tons of money in printing and postage. But is it really the best thing for customers? And are companies really able to provide accurate bills that we don't have to audit? (I realize you can still audit an online bill. I'm making an assumption, however, that in our busy world, people who get their bills online don't spend as much time reviewing them as those of us who still get paper.)

BARBARA GOMOLSKI, a former *Computerworld* reporter, is a vice president at Gartner Inc., where she focuses on IT financial management. Contact her at **barbgomolski@yahoo.com.**

In the early days of automatic withdrawal for bills, I was a gung-ho advocate. It seemed like a great idea, largely enabled by information technology. Now I have a more conservative strategy regarding this "improvement."

Here's how I'm approaching the issue in my own life:

- For recurring bills such as mortgage, car payments and insurance premiums, I'm perfectly comfortable with direct and automatic withdrawal from my bank account. These bills generally don't vary from month to month, so I'm glad to have the opportunity to save the effort of writing either electronic or paper checks.
- For credit card statements, I still want to see paper, if for no other reason than that paper serves as a personal form of "checks and balances." (Did I really spend that much at Costco last month?)
- For bills from utilities (such as the phone, gas, electric and water companies), I have absolutely refused to pay in this automated fashion. Quite frankly, I have found too many mistakes on such bills in the past. I know that if I didn't receive that paper statement every month, I would be less likely to review the charges and catch the errors online.

If it sounds like I'm being a bit cranky, consider this scenario: I was recently away from home for almost three weeks. Upon returning, I found myself facing a stack of mail, several bills and, ultimately, several phone calls, including these:

- I had to call my cell phone provider and have it remove a $75 charge for a service I tried to sign up for while on vacation but could never get to work (phone-to-Internet stuff).
- I had to call my local phone company and have it remove a $30 charge for a second DSL connection that I was being billed for — but don't have.
- I had to call my bank, because while I was away, it made, and then corrected, a banking error in my checking account. The problem was, when I checked my statement online, there was no explanation as to why this money was going in and out of my account. I found out what was going on only when I called and talked to a live person.

If your organization is contemplating a campaign to aggressively push automatic bill paying, here's my advice: Absolutely get the bills right.

Billing errors have long plagued certain industries, such as telecom. If your company in one of those industries, and it keeps making mistakes, customers are going to be unwilling to give up their paper bills. Sure, they can always view their bills online, but in this busy world, they can easily forget.

Also, carefully consider the implications of charging extra for the "privilege" of receiving a paper bill. Not all customers have computers or Internet access, particularly outside of the U.S.

As for me, I'll pay the penalty for the privilege of receiving my long-distance bill in the mail. I have the sneaking suspicion that, even with the extra charge, I'll still come out ahead. ▸

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EXEC TRACK

ING U.S. Chooses Van Wyk as CIO

STEVE VAN WYK has been named CIO at ING U.S. Financial Services, the U.S. subsidiary of ING Groep NV, a global financial services firm based in Amsterdam. Van Wyk comes from Morgan Stanley, where he was most recently CIO and chief operating officer of the individual investory group.

Schneider Is Named First Global CIO at VF

Apparel maker VF Corp. in Greensboro, N.C., announced that **MARTIN SCHNEIDER** has joined the company in the new position of global CIO. Schneider was most recently vice president of global technical and manufacturing systems at The Gillette Co.

Pendergast to Lead Performant IT Group

Performant Financial Corp. in Livermore, Calif., has named **JAYNE PENDERGAST** CIO. Before joining Performant, Pendergast was the first CIO at Appleseed's Holdings Inc., a privately held women's clothing retailer, where she created the overall IT infrastructure.

Textron Selects Cantrel as CIO

GARY CANTRELL has been named vice president and CIO at Textron Inc. in Providence, R.I. Previously, Cantrell held several senior roles at Bank of America Corp., most recently as senior vice president of enterprise access and technology services, and senior vice president of supply chain management for technology and operations.

Allard Is CIO at Spirit

SCOTT ALLARD has joined Spirit Airlines Inc. in Miramar, Fla., as vice president and CIO. Allard most recently served as head of technology at TravelWorm Inc. and previously held technology management positions at Priceline.com Inc. and American Express Co.

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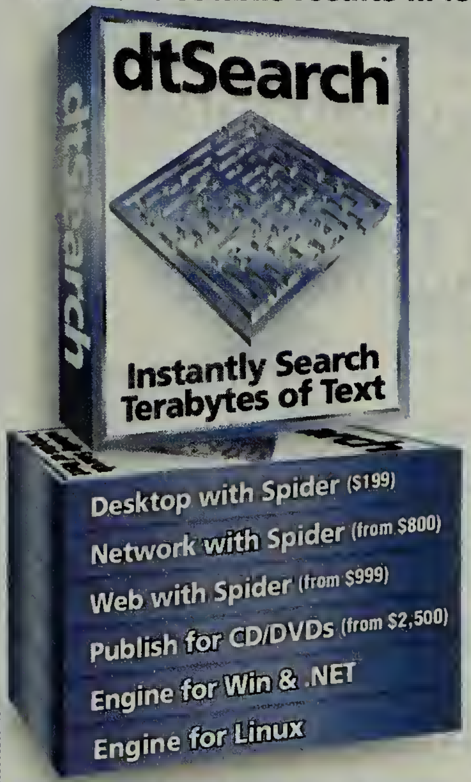
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dtSearch vs. the competition: "dtSearch easily overpowered the document indexing and searching abilities of other solutions, especially against large volumes of documents"

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"The most powerful document search tool on the market" — *Wired Magazine*

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"Blindingly fast" — *Computer Forensics: Incident Response Essentials*

"A powerful arsenal of search tools" — *The New York Times*

"Super fast, super-reliable" — *The Wall Street Journal*

"Covers all data sources ... powerful Web-based engines" — *eWEEK*

"Searches at blazing speeds" — *Computer Reseller News Test Center*

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HOW TO CONTACT COMPUTERWORLD

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Julia King	Executive editor, events	(610) 532-7599

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Continued from page 1

FBI

failure of the Virtual Case File system stemmed partly from management shortcomings.

The Sentinel project's primary goal is to provide FBI agents with "one-stop shopping" for data, Azmi said. Currently, he said, agents often file reports on paper and must log into different databases to search for information.

Sentinel also incorporates the FBI's broader goal of seamless information-sharing with other law enforcement and intelligence agencies. Since the 9/11 terrorist attacks, "our mission has changed," said Azmi, who meets regularly with his IT counterparts at agencies such as the CIA.

The reason for using an SOA, Azmi said, "is to make sure we are interoperable" with current and future systems, both inside the FBI and at other agencies.

Room for Improvement

Despite the scrapping of the Virtual Case File system, which was supposed to be based on custom software developed by Science Applications International Corp., the FBI doesn't view that project as a complete loss. Officials said the hardware and networking systems installed for the earlier initiative will be used as part of Sentinel.

But technology isn't the only thing that the FBI needs to improve with Sentinel. According to a 91-page report released last week by the U.S. Department of Justice's inspector general, the Virtual Case File effort failed partly because the FBI's IT project management office seemed to have a revolving door. Virtual Case File had "15 different key IT managers over the course of its life," the report said.

The inspector general recommended that the FBI devote "significant staffing" to Sentinel, saying that doing so "at the outset of the project is key to establishing the stable management staff required to properly oversee the project." The report said the FBI has yet to fully staff the Sentinel program management office — one of several concerns it raised about the new project (see story, this page).

Azmi, who was named CIO at the FBI two years ago, said he has reorganized the bureau's IT staff in an effort to improve internal project management skills. For instance, when he arrived, there was only one project manager with a professional certification from the Project Management Institute. Now the bureau has 47 employees with PMI certifications, Azmi said.

The Sentinel project will be run internally by a dedicated team that will include its own redundant management, with primary and secondary employees assigned to each spot on the team, Azmi said.

The contract awarded to Lockheed Martin is valued at $305 million over six years, and the Bethesda, Md.-based company said it expects to assign about 200 people to work on the Sentinel project. The estimated $425 million price tag for the entire implementation includes money for additional costs, such as independent system validation and verification work.

Sentinel is due to be delivered in four phases. The first phase, expected to be completed in about a year, includes development of a Web portal that will enable FBI workers to access legacy systems via a modern user interface that supports Web services. ▶

DOJ Auditors Credit FBI on Sentinel Planning Efforts

THE INSPECTOR GENERAL'S office at the Department of Justice, which has been highly critical of the FBI's earlier failed attempts to upgrade its IT systems, is much more upbeat about the plans for Sentinel.

The audit report released last week by the inspector general said that after reviewing the management processes and controls used in the vendor evaluation phase of Sentinel, "we believe that the FBI has adequately planned for the project." The planning work "provides reasonable assurance that the FBI can successfully complete Sentinel if the processes and controls are implemented as intended," the report added.

However, it cited several concerns about the Sentinel plans. In addition to noting that the project management office for Sentinel had yet to be fully staffed, the report said there are still questions about the system's ability to share information with computers at other law enforcement and intelligence agencies. And it remains uncertain whether Sentinel can provide a common framework for case management systems across various agencies, according to the report.

The report also said that the inspector general will continue to monitor the FBI's system security and validation plans as the project evolves.

As of December, the FBI hadn't completed either its plan for securing Sentinel or one for validating and verifying that the system works, the report said. According to the report, the FBI said at the time that the security plan couldn't be completed until the lead vendor on Sentinel provides detailed information about the system's design; Lockheed Martin was awarded the contract last week. Meanwhile, the FBI intends to award a separate contract for the development of a validation and verification plan.

Those explanations were deemed "reasonable" by the inspector general's office, the report said. But, it added, DOJ auditors will re-examine the FBI's progress on the two plans during their next audit of the Sentinel project.

– TODD R. WEISS

Lawson Adds WebSphere Middleware to App Platform

BY MARC L. SONGINI

Lawson Software Inc. last week announced new versions of its human capital, supply chain management and financial software.

In addition, the company brought out a platform for the applications, called Lawson System Foundation (LSF) 9, that's based on IBM's WebSphere middleware and can exploit service-oriented architecture (SOA) technologies.

Lawson had announced plans last May to work with IBM to develop SOA interfaces for its business applications. LSF 9 replaces Lawson Technology 8.1, which supported the middleware and database products of multiple vendors.

Lawson said that LSF 9 can serve as a bridge for customers to exploit Landmark, its WebSphere-based, next-generation set of SOA technologies for linking various processes. Landmark is slated to ship later this year.

One early adopter of the integration technology, North Carolina's Buncombe County, found that LSF 9 allows IT staffers to assign user access privileges by roles and classes. The county rolled out LSF 9 last month, replacing Lawson 8, said accounting manager Sonia Burgin.

Burgin also said that the new version of Lawson's financial application significantly speeds the process of clearing uncashed checks from the system. The process now takes minutes, whereas it used to take an hour.

The county is also deploying Lawson's new business intelligence software to deliver dashboards to county managers to monitor budgets and finances.

LSF 9 includes WebSphere, the DB2 Universal Database and IBM's Tivoli application management software as well as Lawson technology, said Maher Hakim, senior vice president of product strategy.

Hakim said Lawson is offering a single-source services package that covers both Lawson and IBM products.

AT A GLANCE

Lawson System Foundation 9

- LSF 9 is based on IBM WebSphere middleware.
- It's bundled with IBM's DB2 database and Tivoli application management software.
- It provides an SOA foundation for Lawson applications.
- LSF 9 is required for new Lawson process management human capital management and supply chain management versions.
- It works with Lawson Business Intelligence 9.

This isn't a breakthrough release; nevertheless, it's one of Lawson's most significant ever because of its ability to exploit various IBM technologies, said Albert Pang, an analyst at IDC.

LSF 9 is available now. The Lawson 9 applications, which require LSF 9, will ship by May. Pricing was not disclosed.

The company last week also announced that it has started shipping a new process management tool. ▶

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FRANK HAYES ■ FRANKLY SPEAKING

FBI 2.0

THINK $500 million is a lot of money? That's how much the FBI may end up spending over the next six years on its new case management system, dubbed Sentinel (see story, page 1). Maybe you remember Sentinel's predecessor, Virtual Case File. The VCF project lasted four years and cost a mere $170 million. Of course, VCF was such a mess that when the project was killed one year ago this month, it was completely useless. Four years and $170 million later, the FBI had nothing to show for it. Now *that's* an expensive project.

Can the FBI do any better today with $500 million? Maybe.

The difference won't be the money. Three times the money, spent the same way, would just produce a hole three times as deep.

The difference will come in how the FBI uses that money. And right now, the bureau is acting as if every nickel counts.

For example, instead of building a bright, shiny, all-new vehicle like it did with VCF, the FBI is going the used-car route for Sentinel. It's using the enterprise IT architecture it salvaged from the wreck of VCF. It's borrowing an experienced IT project manager from the CIA and an acquisition contract from the National Institutes of Health. And it has squeezed $97 million out of divisional budgets for the first of the project's four phases.

That's another difference with Sentinel: It has four clearly defined, overlapping phases, each with deliverables. VCF didn't have that. Its developers kept plowing ahead as technology changed and requirements shifted because of 9/11. After four years, VCF delivered nothing useful.

But at the end of Sentinel's Phase I, 18 months from now, FBI employees will have a Web portal for access to their creaky old Automated Case Support system, plus some improved case-summary and indexing features. Later phases will layer on workflow, indexing and paperless case management. But even if the next three phases never happen, users will have gotten something for their money.

All this represents a very smart approach, especially because the FBI has two problems to solve. One is delivering Sentinel. The other is restoring its credibility when it comes to big IT projects. With $170 million already down the tubes, the bureau can't afford another botched effort.

Unfortunately, at a casual glance, it looks like Sentinel is already in trouble. The contract was supposed to be awarded last November, then in December. It finally went to Lockheed Martin last week.

That's a nearly six-month schedule slip already. So much for project management cred, right?

Now look closer. It turns out that the original schedule didn't leave enough time between the request for proposals and the bids. Bidders raised technical questions. The bid evaluation team needed more data from bidders. Some elements of the project that were originally planned to be done before bidding ended, including the system security plan, depended on technical details of the bids. The project plan had to be reshuffled.

So, the FBI's management faced a tough decision early on: Hit the deadline and risk the project, or miss the deadline and do it right. Instead of cheating on project management to accommodate an aggressive schedule, the FBI sacrificed the Gantt chart to make sure the project got a good start.

Sure, it looks bad when bid-award day arrives months later than it was supposed to. But unresolved problems just get more expensive over time. If slipping the schedule at the start is the price for nailing down problems early, that little bit of embarrassment and delay is a bargain.

It may just require educating some members of Congress about the realities of software development when it's time to ask for the rest of that $500 million.

So, *has* the FBI got it right? This time, we won't have to wait four years to find out. Whether bureau users have their case management Web portal by the end of 2007 will tell us a lot about how well the FBI can do a big IT project the second time around. ▸

FRANK HAYES, *Computerworld's* senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com**.

What Does It All Mean?

New help desk guy is still getting up to speed at supporting hundreds of different applications, so it's no surprise when he gets a little confused, reports a second-level communications-support pilot fish. "On a particularly busy day, I get the following work ticket from him," fish says. "It reads, 'User sent e-mail about VM not working. Am not familiar with that software. Called and left VM to clarify.' "

SHARK TANK

Oops!

This computer room's cooling system goes kaput, and junior operator pilot fish does everything she can to keep things cool until the repair guys arrive – dragging in fans from the warehouse, cranking up the office air conditioning and opening all the security doors. Finally, fish calls her boss to say that the temperature seems to be steady at 78 degrees. "How do you know that?" boss asks. Fish: The system console says "temp 78." Boss: "That means temporary storage."

Nice Guy

Support pilot fish gets a call from a remote retail site: A PC is plugged in, user says, but it won't power up, and neither will the monitor. One 45-minute drive later, fish is tracing the power cord to the uninterruptible power supply. Turns out the PC is plugged in, but the UPS isn't. "The counter people said they'd heard beeping for the last two hours but didn't think anything of it," sighs fish. "I reached down and plugged the UPS in. To avoid making the counter clerks look stupid, I took the PC apart and cleaned it with compressed air."

Corrected

I can't log in from my office PC anymore, user tells pilot fish. The log-in works from other computers, and fish himself can log in from the suspect machine, so fish is puzzled. "Then I noticed a little flicker in the username field just as he hit Enter to send credentials to the server," fish says. "In a minute, I was able to confirm my suspicions: My colleague had installed a memory-resident spell checker that had determined that his username was a spelling error – and was 'correcting' it before sending it on to the server."

D'oh!

E-mail server goes down, and panicked sales director calls IT pilot fish in desperation. "You have to get the e-mail fixed, because there is something I *must* tell my West Coast sales manager today!" We're working on it, fish says, but in the meantime, can't you telephone or fax the sales manager? Pause. "I would have thought of that, honest. Thanks, goodbye!"

THINK OF SHARKY, and send your true tale of IT life to me at **sharky@computerworld.com**. You'll get a stylish Shark shirt if I use it. And check out Sharky's blog, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky.**

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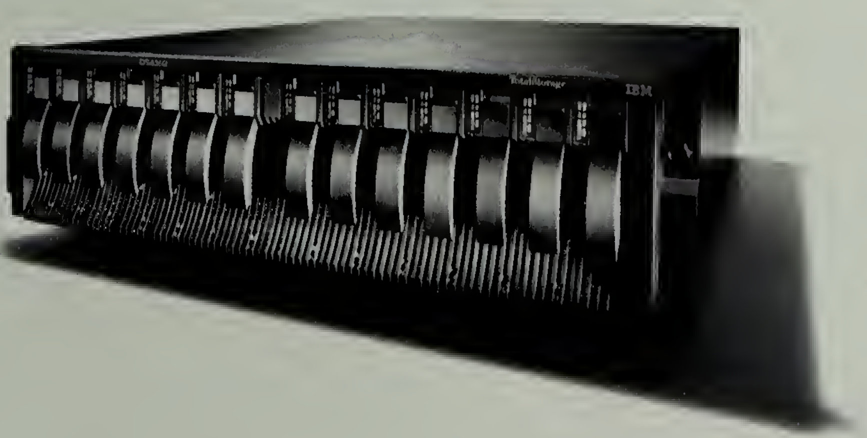

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